A Multi-Level Meta-Analysis to Determine the Association of School District Consolidation on Student Performance on State Assessments

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Abstract

School district consolidation has a history in the United States education system dating back to 1789. The consolidation, or merging, of school districts is often viewed by school decision-makers as an effective way to save money, increase offerings (both academic and extra-curricular), and increase student achievement. This study investigates if there is a relationship between school consolidation and student achievement. The study uses Comprehensive Meta-Analysis to synthesize an effect size from primary and secondary sources. It is the only known study investigating the relationship between school consolidation and student achievement that utilizes Comprehensive Meta-Analysis. Primary data consist of student results on state assessment tests before and after district consolidation from districts mergers in the states of New York, Ohio, and Pennsylvania since 2004. Secondary data were obtained from six previous studies that investigated school consolidation and student achievement. The study focused on results of students in Grades three through eight. Pre- and post-merger data were analyzed for all students, as well as students in the following subgroups: Black, Hispanic/Latino, and economically disadvantaged. Results from New York, Ohio, and Pennsylvania were also compared. Results and implications of the study could provide insight to school district decision makers who might be considering consolidation.

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Chapter 1

School district achievement can be measured in a variety of ways. Districts may have strong social structures, extra-curricular programs, technology departments, teaching staffs, or a combination of all of these areas. High academic achievement of students in a district is typically the gold standard that indicates a district's success. Successful schools make the most of available resources. These resources are made available for each and every student to reach his/her highest academic potential (Grosskopf, Hayes, & Taylor, 2014; Howley, Johnson, & Petrie, 2011). In today's competitive society, it is a struggle to attain this level of success and efficiency in a school district (Duncombe & Yinger, 2001; Dalton, Marcenaro-Guitierrez, & Still, 2014). School district decision-makers are expected to explore all options when deciding what steps to take in order to be successful. Politicians, as ways to improve districts, often support school consolidations, or mergers (Allensworth, Moore, Sartain, & de la Torre, 2017; Alsbury & Shaw, 2005; Fischel, 2010). The passage of Every Student Succeeds Act ([ESSA], U.S. Department of Education, 2019), in 2015, re-authorized the Elementary and Secondary Education Act ([ESEA], 1965). As a result, states are once again revisiting mergers. Pennsylvania is one of the states looking into the advantages and possibilities of school mergers (Gross & Hill, 2016). In the 1960s and 1970s, the number of districts in Pennsylvania were cut from 2,277 to 501. Since 2000, there have been 18 known mergers sought in Pennsylvania; all but one has failed (Joint State Government Commission, 2017). Ohio, Pennsylvania's neighbor to the west, has a similar school district merger

history. The 1950s served as Ohio's decade of greatest school district reduction, dropping to 984 by 1959, and resting at 617 in 1973. A report issued in February 2010 by the Brookings Foundation and the Greater Ohio Policy Center, *Restoring Prosperity: Transforming Ohio's Communities for the Next Economy* Kuchinke, (2010), ignited school consolidation discussions in Ohio. The recommendations in the report were embraced by politicians. The report suggests that the number of districts should be reduced by one-third (Ashbury, 2011). New York has been more successful in making school mergers, or consolidations, a reality than Pennsylvania and Ohio. There were approximately 9,000 school districts in New York in the 1950s. Over the past 70 years, that number has been reduced to about 700. Since 1996, 26 school districts have merged to create 11 districts. New York is not always successful in this venture. Since 1996, there have been 30 other districts consider a merger of some type in New York. All of these 30 districts decided to remain stand-alone districts (New York State Association of School Business Officials [NYSASBO], 2014). The goal of this study is to use existing data related school mergers in New York, Ohio, and Pennsylvania to determine if student achievement increases as a result of two, or more, school districts becoming one.

Research on school size and its impact on student achievement has a direct influence on consolidation decisions and has been a moving target in terms of ideal school size throughout the history of public education in the United States. Research results in terms of school size and student achievement have been mixed. One theory is that per-student-costs can be reduced by increasing the

number of students served. All districts have some fixed costs that are distributed over the enrolled students. Theoretically, these fixed costs are spread over more students in larger districts, thereby reducing the cost per student. For example, in large districts, the same administrators may be able to manage a range of different student enrollments at the same staffing level (Duncombe & Yinger, 2004).

Statement of the Problem

Historically, states have turned to school district mergers as the answer for school improvement (Rooney & Augenblick, 2009). Supporters of mergers believe money is saved and students are provided more opportunities (Pennsylvania School Boards Association, [PSBA], 2009). As a result of the 2015 passage of ESSA which re-authorized ESEA, states are once again revisiting mergers (Pennsylvania, Michigan, Maine) (Gross & Hill, 2016). There are a high number of small districts in New York, Ohio, and Pennsylvania. Some research suggests that these small districts could benefit in terms of programming and funding from merging. Research needs to be done to determine if a relationship, positive or negative, exists between school district mergers in New York, Ohio, and Pennsylvania and student academic achievement.

Research Questions

1. Based on standardized test results, is there an overall change in academic achievement of districts pre- and post-merger?

2. Based on standardized test results, is there an overall change in academic achievement of students pre- and post-merger?

3. Based on standardized test results, is there a subgroup that performed differently pre- and post-merger? Specifically, are there student groups, or school characteristics that result in different impacts from the merger?

4. Based on standardized test results, is there a grade level that shows better academic achievement in pre- and post-merger districts?

5. Based on standardized test results, is there a difference in overall achievement of students in the states used in the study (New York, Ohio, and Pennsylvania) in pre- and post-merger districts?

Purpose of the Study

The purpose of this study is to examine pre-existing student data from state assessments in New York, Ohio, and Pennsylvania school districts that have experienced consolidation to determine if there is evidence that suggests that the merger had a positive or negative relationship on student academic achievement. Larger student populations are a direct result of school mergers. Research suggests that larger schools produce higher academic-achieving students. The researcher hypothesizes that there will be negligible evidence that the newly formed district produces higher academic-achieving students.

Significance of the Study

With the passing of ESSA (2015), educational authority returned to the states. Many state legislatures have already begun to consider mergers to address economic and student opportunity pressures. This study will provide decision-makers with data from New York, Ohio, and Pennsylvania students who have experienced school mergers and whether or not there is a relationship between the change in the students' district and their academic achievement (Gross & Hill, 2016).

Research Design

This meta-analytical study compares the standardized reading and math scores of students in New York, Ohio, and Pennsylvania who have endured a school merger. The researcher understands that with each school district merger there are unique variables. While comparing the pre-existing data, the researcher will attempt to pull out these differences.

Sample, Size, and Setting

The researcher used data from school districts in New York, Ohio, and Pennsylvania that experienced school district mergers. State assessment data for students in Grades three through eight were gathered from each state's department of education. Subjects used for the study were limited to math and English Language Arts (ELA).

Measures

For the purpose of this study, the researcher used standardized test scores in New York, Ohio, and Pennsylvania. These scores are public record. The New York State Department of Education (NYSDE), the Ohio Department of

Education (ODE), and Pennsylvania Department of Education (PDE) house assessment results. New York State categorizes student achievement on state assessments by levels. Level 1 describes a student in "serious academic deficiencies", Level 2 achievement places a student in "need of extra help", Level 3 students "meet the standards", and level 4 students "exceed the standards" (NYSDE, 2004, p. 5). In New York, two levels are considered proficient, levels 3 and 4. In Ohio, student achievement is reported as: limited, basic, proficient, accelerated, and advanced. There are three categories in Ohio in which a student would fall into the overall proficient category: proficient, accelerated, and advanced. Pennsylvania has four reporting categories: below basic, basic, proficient, and advanced. Proficient and advanced both qualify a score to be proficient.

Procedures

Approval from the Youngstown State University's (YSU) Institutional Review Board (IRB) was granted, and the researcher identified 12 studies focusing on student achievement and school district mergers. Computing an estimated effect-size measure across all data is necessary to provide an indication of whether there is homogeneity or heterogeneity across the different data being synthesized. Once all the effect-size measures were calculated, the results were analyzed, interpreted, and reported as findings. A singular effect-size measure was computed for all of the studies followed by individual effect-size measures for each of the moderator variables. Raw data were collected from school districts experiencing mergers between 2004 and 2014 from New York, Ohio, and

Pennsylvania. The raw data consisted of standardized state assessment data from each state. New York administers the Regents Exam; in Ohio, students took the Ohio Achievement Test (OAT) through the 2010 school year. Since 2010, the Ohio Achievement Assessment (OAA) has been given in the state. The Pennsylvania System of School Assessment (PSSA) assesses student academic performance in Pennsylvania. The researcher gathered available data from each state three years before and after each merger.

Assumptions

The researcher made assumptions about the assessments given in each state. It was assumed that each assessment was fairly and systematically given in each school. It was also assumed that the results of the assessments accurately represented student achievement. Finally, the researcher trusted that the assessments were accurately scored and reported.

Limitations of the Study

The validity of the study could be compromised by a number of factors. There have been a limited number of studies done on student achievement and school district mergers. A limited sample could have an impact on the generated effect. Other limiting factors of the sample include varying socio-economic statuses of the tested students, identified number of students with special needs, as well as the experience of the teachers. All of these factors are not being investigated, but could cause an effect in the overall outcome.

The raw data have limitations also. Not all state data were available for the desired three-year-period pre- and post-merger. Also, there was a time period,

in New York, that only students in Grades four and eight were tested. The tests in New York, Ohio, and Pennsylvania have undergone changes. The passing of the No Child Left Behind (NCLB) Act in 2001 required testing in Grades three through eight in reading and math. This legislation brought changes to assessments in all states. For this study, New York is the only state that will have data included that pre-dates NCLB. New York assessments did change as a result. The Common Core State Standards were adopted by 45 states in 2013. These new standards changed the content and expectations of state assessments. New York, Ohio, and Pennsylvania all adopted the Common Core Standards. In this study, any assessment given from 2015 to the present will be based on the Common Core Standards. Regardless of the state or assessment results used, the identified level of proficiency in each state does create a potential limitation.

Definition of Terms

Consolidation: The elimination of existing governmental entities, and the creation of a new governmental entity (Pennsylvania Economy League, 2010).

Merger: The combination of two or more municipalities that results in the termination of all but one of the municipalities. The remaining municipality assumes jurisdiction over the municipalities which have been terminated (Pennsylvania Economy League, 2010).

Summary

This study investigates the impact school district mergers have on student achievement. A meta-analytical study was conducted utilizing findings from 12

prior studies. These studies were found by doing extensive research through a number of search engines and data bases. These studies represented school mergers from various locations across the United States and two studies from outside the country. The studies also represent school mergers of varying sizes. Raw data from 14 different school districts and seven successful district mergers were also analyzed. The education departments of New York, Ohio, and Pennsylvania store student assessment results. This study required all available results for students in Grades three through eight in the subjects of math and English Language Arts (ELA) for up to three years before the merger and three years after the merger. Results of the analysis were investigated and discussed. In addition to implications for further research, practical applications for key decision-makers in terms of school district mergers will be explored.

Chapter 2

Review of Literature

As the world gets smaller and more competitive, decisions made by school districts become more public and more scrutinized. Over the past 80 years, the decision of school districts to consolidate or merge has been a popular one (Bard, Gardener, & Wieland, 2006; Berry & West, 2010; Rooney & Augenblick, 2009). During that time the number of school districts in the United States has declined nearly 90% (Duncombe & Yinger, 2007). With each consolidation, meetings are held, discussions take place, and lives are altered (PSBA, 2009; Tennison, 2014). The majority of school consolidation research focuses on the financial aspect. The financial advantages are typically supported with an explanation of economies of scale (Howley et al., 2011). However, the bottom line in education is not simply dollars and cents. There are other factors for school leaders to consider when investigating and determining if a merger is the best move for their district. Studies have explored all factors that school leaders need to consider during the exploration of school consolidation. The focus of this research is what student achievement looks like before and after school district mergers in New York, Ohio, and Pennsylvania.

The terms school district merger and school district consolidation are used interchangeably throughout much of the research. Municipal law in Pennsylvania, Act 90 of 1994, defines consolidation as, "the elimination of existing governmental entities, and the creation of a new governmental entity" (Pennsylvania Economy League, 2010, p. 3). Merger is defined as "the

combination of two or more municipalities that results in the termination of all but one of the municipalities. The remaining municipality assumes jurisdiction over the municipalities which have been terminated" (Pennsylvania Economy League, 2010, p. 3). Based on these definitions, the joining of districts in New York, Ohio, and Pennsylvania would most often be defined as consolidation. It is also important to note that this research is investigating the consolidation/merger of school districts. There has been research on the consolidation/merger of schools within the same district; however, these studies have not been used as part of this review. In this study the two terms are used interchangeably.

History of School District Consolidation

The literature related to school district consolidation is endless. The question of school size has been debated in the United States since public education began. Horace Mann was one of the first to question the effectiveness of small public school districts (Strang, 1987). The Massachusetts Act of 1789 created common districts dictated by boundaries of towns, townships, or counties. This system, created in New England, became the common blueprint that the rest of the country would follow (Foght, 1910).

Mann disagreed with the lasting impact of the Act. He stated that it was "the most unfortunate law on the subject of common schools ever enacted in this state" (Foght, 1910, p. 26). Common districts were viewed as too small due to overlapping costs, mediocre leadership, unfair resource distribution, and out-of-date instructional practices (Strang, 1987). Eventually, Mann pushed for the centralization of schools. This movement gained ground by the mid-1850s

(Bryant, 2002). The need for increased professionalism, specialization, and standardization helped the movement grow even stronger in the last few decades of the 1800s (Streifel, Holman, & Foldesy, 1992). Ralph and Rubinson (1980) studied the effects of immigration on the rate of growth on educational expansion in the United States from 1890 to 1970. Their findings reinforced the need for educational specialization and standardization. They argued that the influx of immigrants to the United States during this time period "provided an important contrast"(p. 1) to the Protestant groups who dictated education at the time. The study proceeded to express how immigration increased the rate of student population in both primary and secondary schools (Ralph, & Rubinson, 1980). The National Center for Education Statistics (NCES, 2012) began tracking the number of schools and districts during the 1937-38 school year (Snyder, 1993). Data collected between 1937 and 2011 showed that, " the number of districts in the United States dropped from 117,108 to 13,601" (NCES, 2012, p. 144). There were nearly 250,000 school buildings in operation during the 1937-38 school year; these buildings housed about 25 million students. By 1999, there were just fewer than 15,000 school districts, with just over 92,000 buildings. The number of students attending those schools had risen to roughly 50 million in the 60-year period. The number of districts dropped most dramatically during the 1940s and 1950s, and decreased every year until the 2010-2011 school year when the number reached 13,588 (NCES, 2012).

Unlike other countries, the United States has a decentralized federal system of education (Lee, Ready, & Welner, 2004). This means schools and

school districts can look drastically different. For example, Hawaii operates one school district for the entire state, while many states, even small ones like New Jersey, maintain hundreds of districts (Barker & Gump, 1964). As a result of the systemic transformation of schooling in the United States, especially after World War II, the number of school districts decreased, dramatically, between 1931 and 1961 and then remained comparatively stable for the following 30 years (Barker & Gump, 1964; Snyder, 1993).

Rapid school consolidation occurred in the 1940s, 1950s, and 1960s, but the groundwork was laid in the early 1900s. Ellwood P. Cubberley, was a superintendent in California in the early part of the 20th Century (Cubberley, & Suzzallo, 1912). His ideas about schools, and specifically school administration, had a lasting, nation-wide impact long after his death in 1941 (Berry, 2004). Cubberley (1922) believed that consolidation made sense for three primary reasons. The first was that consolidated schools would make for more efficient administration. Bringing five to seven school districts together as one made the opportunity for effective leadership a reality. The second reason was that consolidated schools would provide specialized instruction. During Cubberley's time as an administrator, many students were not separated by grade. There were too few students to create multiple grades in small districts. Combining schools and creating a larger student population would permit teachers to focus a specific type of a learner. This meant students would be placed into grades and teachers could specialize on age-appropriate skills. Finally, consolidation provided an opportunity for district facilities to be upgraded. He believed that bigger meant

better because, “smaller schools and school districts not only failed to maximize resources, but also did not prepare students for post K-12 life” (Berry & West, 2010, p. 52).

Reasons for Increased School District Consolidation

There was a rapid consolidation movement in the United States between 1938 and 1963. During this 25-year window, many factors contributed to school consolidation. Educational philosophy expressed by school leaders like Ellwood P. Cubberley (1922) provided a foundation for consolidation. Technological advances were most likely what caused the 25-year spike. Most of the consolidation research during this time frame gave most of the credit to advances in technology, and its impact on life in the United States. A shift in educational philosophy can be tied to technology during this period by looking at issues such as transportation, population shift, and global competition.

Transportation

Improvements in transportation broadened the geographical radius that a single school could service. Formerly, schools were limited in the students they could service based on the distance those students had to walk, especially in rural areas. Free public transportation was first offered to students in 1869. This caused a push for broader regionalized school districts (Bard et al., 2006). Orr (1992) cited the increase in personal automobile ownership and the decline of one-teacher schools as contributing to this broadened, geographical radius of school districts.

In 1927, A. L. Luce produced a bus body for a 1927 Ford Model T. The International Harvester Company was the first to advertise school buses in its catalogues in the 1930s. Within a decade, bus transportation became more common, and by 1950, it became the standard means of transportation in many school districts (Orr, 1992; Suiter/ Swantz Intellectual Proprety, 2016).

Population Shift

Other technological advances brought great shifts in population. Factory work was in much higher demand than farm labor between 1938 and 1963. The population shift due to employment also shifted the population of the nation's students. This shift had an impact on the population of schools of all sizes across the nation. Just before the U.S. entered World War II, the number of schools in the United States had declined; however, student enrollment was on the rise (Brasington, 2003). Urban school enrollment rose, consequently causing rural school enrollment to drop. The migration to cities caused rural districts to consider consolidation (Fanning, 1995).

Integration and Consolidation

In 1954 *Brown v. Board of Education* (Brown v. Board of Education, 347 U.S. 483, 1954) changed the landscape of public education in the United States. For only nine years of the 25-year period (1938-1963) of heightened school district consolidation was school segregation illegal in the United States. During this nine-year period, there was great resistance to school consolidation in the name of integration (Kotok, Reed, Kucsera, & Orfield, 2015). It took decades for schools to accept integration, with few success stories. One successful school

merger as a result of *Brown v. Board of Education* took place in New Jersey in 1971, nearly 20 years after the *Brown* decision. This integrated school merger occurred only because of the state-level court case *Jenkins v. Township of Morris School District*. *Brown* and *Jenkins* had similar intent, but different results. The community was the driving force for integration in the Jenkins case; federal law and courts were the driving force for integration throughout the nation as a result of the Brown outcome (Kisielewski, 2016). The research does not give credit to school integration for increased school consolidation.

The Pennsylvania Human Relations Commission was created in the 1960s to enforce school desegregation. This was nearly 80 years after a bill was signed in 1881 legally ending segregation in Pennsylvania schools (Brown, 1961). The Woodland Hills School District is an example of merging school districts as a direct result of integration laws (Michaud, 2001). Woodland Hills was formed, in 1981, by combining Edgewood, Swissvale, Churchill, General Braddock, and Turtle Creek (Kotok et al., 2015). General Braddock was the result of three poor, primarily Black communities. Just before the merger was finalized, in 1971, parents filed a law suit (Hoots v. Commonwealth of Pennsylvania, 1973) stating that the creation of General Braddock actually created a less diverse school system (Michaud, 2001). It took another 10 years of court orders and mandates for the Woodland Hills School District to be created.

Global Competition

World War II opened the eyes of many Americans to the realization that there were other strong nations, other than the United States, in the world. This

realization was solidified when Russia launched *Sputnik 1* in 1957. During this era in U.S. educational history, another consolidation advocate shared his view of school size. Retired Harvard President and prior chemistry professor, James Conant (1967), believed that only schools with graduating classes of 100 or more provided quality education. Conant's (1967) research on U.S. public education between 1957 and 1965 heavily influenced educational decision-makers of the day. During this time, Conant (1967) was convinced that small schools should combine in order to better compete on the world's stage (Hershberg, 1995). Conant's (1967) opinions were broadcasted across the country. Soon many rural mergers took place. During the Cold War era, schools felt pressured to produce an efficient American workforce (Deyoung & Howley, 1992; Spring, 2011). Conant's (1967) idea that bigger is better influenced future school district mergers.

The call for school consolidation, in response to the launch of *Sputnik 1,* and the growing Cold War was not only supported by James Conant (1967) (Bard et al., 2006). In 1958, Congress passed the National Defense Education Act (NDEA). The federal government recognized the need for the development of programs that would maximize human resources for the Cold War (Spring, 2011). These crucial programs were more easily implemented in large schools. Smaller, mostly rural schools were less likely to be able to make the curricular, professional, and physical changes to incorporate these new programs. They were perceived as behind-the-times, and because there was a national calling for schools to produce citizens who would help fight the Cold War, there was

pressure for smaller schools to do what was necessary to prepare students (Bard et al.). The result was a push to make smaller schools look like the larger schools that could handle these new programs. This meant a push to merge small districts, bureaucratize them, and hire educational professionals who were not locals. These new leaders would utilize the latest pedagogical knowledge to modernize the newly formed district (Schafft & Jackson, 2010). The pressure to compete internationally made the consolidation approach to small schools a very popular decision throughout the country.

Two reports in the early 1980s also put public education in a global spotlight. In 1983, a federal report entitled *A Nation at Risk* was published and it blamed many of America's shortcomings on public education. *A Nation at Risk* outlined the need for national educational goals that would help produce a work-force that would help the United States maintain its presence in the global economy (Spring, 2011). *Action for Excellence* was also published in 1983 and attacked public education. It stressed the need for schools to run more like businesses. In order for this to happen, schools and businesses were encouraged to form relationships (Spring, 2011). These relationships provided opportunity for influential business leaders to impact decisions regarding education. During this time, in the United States, the labor market experienced another shift from farm and industry work to service-oriented workers (Miller, Ellsworth, & Howell, 1986). These businesses and employment opportunities were primarily found in urban and suburban areas. Once again rural areas experienced another round of population depletion. These two reports helped expose a perceived weakness in

public education. The reports also opened the door for businesses to influence educational decision-making. From a business standpoint school mergers were a logical choice in response to population shifts, outdated buildings, and the development of future employees.

School Size

Consolidating school districts results in an increased student population in the newly formed district. Research on school size and its relationship to student achievement has had a direct influence on consolidation decisions. Since the creation of public education in the United States, educational decision makers have struggled to determine the ideal size for schools (Cubberley, 1922; Slate & Jones, 2005; Stevenson, 2006).

As part of a 1935 study of local schools in 32 states, the Department of Interior released a report suggesting that elementary schools enroll a "minimum of 240 to 280 pupils, six-year high schools enroll 210 to 300 pupils, junior high schools enroll 245 to 350 pupils, and senior high schools enroll 175 to 350 pupils" (U.S. Department of the Interior, n.d., p. 25, as cited by Vorthmann, 2005). A report released by the National Commission on School District Reorganization stated, "No factor is more closely related to problems of school and district organization and needs for reorganization than the size of schools" (Dawson 1948, p. 58). This report also set new standards for minimum student enrollment. These standards "suggested the creation of elementary schools with at least 175 students, preferably 300 students for improved quality, and high schools with at least 300 students (Dawson, 1948, pg. 58)". Conant (1959) recommended that

high schools have 100 students in each freshman, sophomore, junior, and senior class, or 400, in order to provide a curriculum that would meet the needs of all students. In 1967, Conant published a report titled, *The Comprehensive High School*, and suggested that "an excellent comprehensive high school can be developed in any school district provided the high school enrolls at least 750 students and sufficient funds are available" (Conant, 1967, p. 6). In 1981, advocates of consolidation believed that an efficiently run high school should have a student population between 1000 and 2000 students (Fox, 1981). Lee and Smith (1997) found that the high school size maximizing student performance gains is between 600 and 900 pupils for both high- and low-socio-economic status (SES) students (Lee & Smith, 1997). In a study by Andrews, Duncombe, and Yinger (2002), moderately sized schools (elementary schools of 300-500 and high schools of 600-900 students) may counteract the negative effects of larger schools. When considering maximums and minimums of entire school districts Lawrence et al. (2002) suggested the student enrollment should not exceed 4,000 to 5,000. Contrarily, Imerman and Otto (2003) believed a district's population should not drop below 750. Optimum school size appears to be a moving target. Gershenson and Langbein (2015) categorized schools as small, if they were less than 400 students, medium schools were between 400 and 750 students, and large schools were greater than 750 students. The same study discovered that growth in math was greater in smaller schools than in medium or larger-sized schools (Gershenson & Langbein, 2015).

Research pertaining to school size and its potential impact on student achievement has had mixed results. Cotton's (1996) study of elementary schools in Indiana that experienced a shock to enrollment (some due to consolidation) found that increasing the size of the schools significantly lowered student achievement. In Cotton's (1996) review of 31 schools, not one of the results favored higher student achievement in larger schools. An analysis of 60 studies (mostly from the 1960s) conducted by Greenwald, Hedges, and Lane (1996) discovered that student achievement was better in smaller schools. Greenwald et al. preformed a second analysis of schools from the 1970s. The results of the second analysis also showed greater achievement in smaller schools (Greenwald et al.). Ilyana Kuziemko (2006) studied Indiana schools to determine how school size impacted average daily attendance and math scores. Kuziemko's (2006) findings suggested that reducing school size increases student achievement in these two areas. Jerry Johnson's 2006 study on school size in rural Iowa supported the findings of Kuziemko (2006). He discovered that smaller school districts in Iowa did not exhibit lower levels of student achievement. His study also suggested that strategies to consolidate districts to create larger high schools are likely to increase the negative effects of poverty on academic performance, widening achievement gaps between rich and poor students (Johnson, 2006).

Some of the research resulted in neutral findings. Ramirez (1992) investigated to see if there was a correlation between school size and student achievement. His study found there was no significant difference in student achievement based on the size of the school. Patterson, Koenigs, Mohn, and

Rasmussen (2006) found no proof that students from small rural schools receive less of an education than those students at larger schools. In a study of North Carolina schools, between 2004 and 2010, Gershenson and Langbein (2015) concluded there was," no evidence of a causal relationship between between school size and student achievement, whether school size is measeured at the school or grade level" (Gershenson and Langbein, 2015, p.151).

Other research suggests that larger schools are more beneficial to students. A study by McGuffey and Brown (1978) found that greater student achievement was attributed to reduced per-pupil spending. Reduced spending per pupil typically occurs in larger schools. Forbes (1993) discovered that biology and physics grades were higher in larger schools as compared to smaller schools. Friedkin and Necochea (1988) were able to suggest that larger schools did see increased achievement in the data collected from the California Assessment Program. In addition, these researchers stated that higher achievement in larger schools was most likely to occur in schools with a higher socioeconomic status (Friedkin & Necochea, 1988). Results from a study conducted in Alaska indicated that the, "average achievement score was lower for students in smaller schools than in larger schools, but disadvantage students perform better in small schools than in larger schools" (Huang & Howley, 1993, p.143). The research to determine what impact school size has on student achievement varies. However, the more recent research shows a trend in favor of smaller schools.

Consolidation Impact on Student Achievement Abroad

School consolidation is not limited to the United States. Other countries have also experienced a school consolidation movement. Researchers in these countries have considered the impact that this shift has on student achievement. China went through educational reform when their leaders enacted a policy called *A Decision to Reform and Develop Primary School Education* (Liu, Zhang, Luo, Rozelle, & Loyalka, 2010). This was in response to the "goals set by the 2000 World Education Forum to ensure all children in Dakar were in school by 2015" (Pigozzi, 2006. p. 41). A primary goal of China's reform was the implementation of a merger program in rural school districts (Liu, Zhang, Luo, Rozelle, & Loyalka, 2010). Liu et al. examined the academic performance of K-12 students in regard to mergers. The study reported that academic performance was not harmed as a result of the mergers. It is interesting to note, however, that the timing of the mergers did have a significant impact on students' academic performances. Students experiencing mergers after fourth grade showed a rise in performance; younger students showed a decline in achievement.

A 2016 study of Denmark school consolidations analyzed test scores and enrollment one year prior to consolidation and four years after consolidation. This study found that school consolidation had adverse effects on student achievement. The effects were more pronounced in the short term, two years after the consolidation, than when achievement was analyzed at the four year mark. The study suggested this may be due to the disruption and eventual settling of the students (Beuchert, Humlum, Nielsen, & Smith, 2018). Similar results were found in a study on school consolidation in Dutch primary schools. In the

mid-1990s, Dutch policy makers and school officials identified an increased urban concentration, an aging population, and a decrease in students. These discoveries led to a decision to increase the minimum required primary school size. This changed the average primary school size in urban areas from 62 to 101. The results of this study indicated a very small positive effect on student achievement (0.72%) (De Haan, Leuven, & Oosterbeek, 2016).

In 2006, the HayGroup studied school consolidation in the United Kingdom. The analysis indicated that the resulting districts fell into three distinct categories: 28% of schools experienced a one- or two-year dip in student academic performance then recovered; 21% of schools immediately exceeded their pre-merger student academic achievement, while 51% of schools dropped and did not recover their prior academic achievement. Data were collected on 73 districts three years before and after the consolidation (HayGroup, 2006). The four foreign studies investigated provided mixed results.

Consolidation Impact on Student Achievement, United States

Student achievement in pre- and post-consolidated school districts has been studied in the United States. Most of these studies focused on rural districts; some have been completed in urban settings. Another major theme is school size. Many of the researchers referenced school size when reporting student achievement results.

Duncombe and Yinger (2001) conducted a study of rural New York schools to primarily determine potential cost savings due to consolidation. Part of their study was to be sure student achievement was not jeopardized as a result of a

change in funding. They compared consolidated and non-consolidated districts in 1985 and 1997. Duncombe and Yinger (2001) compared three areas of student achievement: percent of third- and sixth-grade students below minimum competency scores on state reading and math tests, dropout rate, and rate of students going to college. In 1985, the consolidated districts had a .4% edge over the non-consolidated districts in math; in 1997, this .4% remained the same. In 1985, the reading advantage was with the non-consolidated districts by .9%. This advantage switched by 1997; by this time the consolidated districts had a .6% advantage in reading. The dropout rate in both districts were the exact same in 1985 (3.7%) and then again in 1997 (2.3%). Non-consolidated districts had a higher percentage of students attending college in 1985 (+4.6%), and, again in 1997 (+2%). The researchers reported that these results were "small in magnitude" (Duncombe & Yinger, 2001, p. 21).

Gilliland (2008) found there was a statistical significance in eighth-grade student achievement in both reading and math after consolidation in rural Illinois schools. He reported that eighth-grade students scored much higher on the Illinois Standards Achievement Test (ISAT) reading and math components after consolidation. "Reading scores rose by 9.61 percentage points and math increased by 11.48 percentage points for each student who met or exceeded the state benchmark" (Gilliland, 2008, p. 124). The study focused on rural schools; Gilliland (2008) suggested that small rural consolidation still keeps the number of students at a small school level.

A Cox and Cox study in 2010 titled, *A Decade of Results: A Case for School District Consolidation* looked into the impact of school consolidation on an urban school district in Tennessee from 1997 to 2007. The authors compared the results from the Tennessee Comprehensive Assessment Program (TCAP) in Grades three through eight (see Table 1) as well as ACT scores in Grades 9-12 (see Table 2) prior to consolidation in 1997-98, then again after consolidation in 2006-07.

Table 1.

TCAP Scores for Grades 3-8

	1997-98	2006-07
Reading/Language Arts	58	59
Math	55	63

Table 2.

ACT Composite Scores for Grades 9-12

	1997-98	2006-07
ACT Composite	19.3	19.8

Cox and Cox (2010) reported that the increase of scores on the TCAP and the ACT were not significant enough to determine that consolidation had an

overwhelming positive impact on student achievement. The most notable gain was in math for students in Grades three through eight.

A study in Texas countered the findings of Gilliland (2008). Cooley and Floyd (2013) measured passing-rate percentages on the Texas Assessment of Academic Skills (TAAS) and Texas Assessment of Knowledge and Skills (TAKS) between school districts with similar characteristics. The only difference was that some of the schools had recently merged. Cooley and Floyd (2013) used 20 districts that consolidated between 1999 and 2009 for the study. These 20 districts formed 10 new districts. They then found 20 districts that decided not to consolidate. All schools were classified as rural. Cooley and Floyd (2013) found a statistical difference in student achievement. The passing-rate percentages decreased in the consolidated school districts (Cooley & Floyd, 2013).

Mills', McGee's, and Greene's (2013) study investigated the repercussions of Governor Mike Huckabee's response to the Arkansas Supreme Court that the state's school funding system was unconstitutional. The governor's response resulted in the Public Education Reorganization Act, Arkansas Act 60. This act mandated consolidation of districts with student enrollment less than 350. Mills et al.'s study discovered that school district consolidation, "had a small positive effect on student achievement from the smaller of the two merged districts" (Mills et al., p. 20). However, this positive effect in performance of students in the smaller district was off-set by negative achievement for students in the larger of the two districts (Mills et al.).

Marchbank (2015) studied the impact school consolidation had on student achievement in rural Maryland. She looked at high school proficiency scores in tenth-grade English and Biology, and also the number of AP tests taken and the passing rate of those tests in two high schools prior to consolidation, then, again once the new school was formed. She acknowledged that much of the research suggested that school consolidation had a negative impact on student achievement. Her findings were contrary to what most of the other research reported. She contested that school consolidation actually had a very positive effect on student achievement. In 2007, the average percentage of students passing AP exams in the two independent high schools was 41%, with 160 exams taken (Marchbank, 2015, p. 85). In 2014, the new school had a passing rate of 55% and there were 295 exams taken (Marchbank, 2015, p. 85). Tenth graders' percentage, with a passing English score from the two high schools the last five years of their independence, was 51.6% (Marchbank, 2015, p. 88). Since the consolidation, the scores increased to an 84.5% average (Marchbank, 2015, p. 88). Biology scores reported a similar trend. In the years before the merger, biology scores in the independent high schools averaged 58.4% (Marchbank, 2015, p. 91). In the six years since the merger, the average score in Biology was 91.3% (Marchbank, 2015, p. 91).

Barnette (2016) studied two consolidated North Carolina districts. One of the districts (undisclosed name of district, "XYZ") came to be in 1991, the other in the study, (undisclosed name of district, "ABC"), was created in 2004. In 2004, the three districts that would become "ABC" district had a combined

elementary student achievement of 73%. In the first year of consolidation, that achievement level was 74.8%. In 2015, the elementary student achievement dropped to 57%. The high school student achievement rate one year prior to consolidation, in the three districts, was 81.6%. In 2005, after the consolidation, the rate dropped to 66.2%, then to 57.5%, in 2015. The same data were not available for the "XYZ" district. The only year available for "XYZ" elementary and high school student achievement data was 2015. During this year, the elementary rate was 59.2% and the high school rate was 57.4%. Both "ABC" and "XYZ" districts did show an increase in graduation and student attendance rate after consolidation (Barnette, 2016).

New York, Ohio, and Pennsylvania

Not unlike every other state in the union, New York, Ohio and Pennsylvania have a history of school consolidation. School consolidation in all three states mirrors that of the nation. After the Central Valley merger in 2009, Pennsylvania dropped to an even 500 school districts; there were 608 districts in Ohio after their last merger in 2014. New York State sits at 733 districts according to the New York State Education Department. Pennsylvania hit its peak with 2,599 in 1909-10 school year (PSBA, 2009). In 1915, Ohio had 2,674 school districts; New York had an estimated 11,000 in 1845 (New York State, 1958; NYSASBO, 2014). Each of the three states saw major reductions in the number of school districts in the middle of the last century. In the 1950s, Ohio experienced the greatest decrease in districts as a result of the consolidation movement. State legislatures, at the time, were offering financial incentives for

schools to merge in Ohio (Ashbury, 2011). Likewise, Pennsylvania had two major declines in the total number of school districts across the state. In the 1960s, then again in the 1970s, the number of districts drastically decreased due to legislative mandates along with incentives (PSBA, 2009). New York saw a drastic reduction in the middle of the last century as a result legislation (New York State, 1958). Like the rest of the nation, these states pointed to the money that could be saved by combining schools, the need to create a globally competitive workforce, a shift in population, and increased student achievement.

In April 2009, the Center for the Study of Education Policy published a report about the consolidation of public schools on a county-wide basis. This report titled *County School Districts: Research and Policy Considerations* outlined the challenges and benefits of consolidation through in the context of a county-wide school system. According to the report, seven states have a 90-100% county-wide structure in place, five states have a 25-89% county-wide structure in place, 14 have a 1-24% county-wide structure in place, and 23 have no county-wide structure in place. Hawaii has a state-wide system. Pennsylvania and Ohio fall into the1-24% group; New York is in the category that has no evidence of a county-wide structure in place.

Pennsylvania State Senator, John Wozniak (D-35th), supports the idea of county-wide school districts. He believes county-wide districts work in the states that utilize them (Hyland, 2013). Maryland is one of the states that support county-wide school districts. Maryland's superintendents make just over $203,000. Pennsylvania's superintendents average just under $140,000. The

Pennsylvania counties of Washington and Beaver currently have 15 school districts (McNutt, 2017). These two counties alone spend over $1,500,000 on superintendent salaries. This position, in a school district, as well as an assistant superintendent position, and business manager could push that savings over $2,000,000 in counties like Beaver and Washington (Mahon, 2019). This cost-saving as well as a unified county focus on education bolsters the support for county-wide school districts.

New York History of School Mergers

Of the three states included in this study, the school districts in New York State have more merger experience than those in Ohio and Pennsylvania. The New York State Education Department (NYSED) reported that there are currently 733 school districts in the state (NYSED, 2019). In 1845, there was an estimated 11,000 school districts in the state (New York State, 1958; NYSASBO, 2014). The Central Rural Schools Act was first ratified 1914. This piece of legislation encouraged centralization of schools. There was no state aid incentive coupled with this act. In 1925, the Cole-Rice Act was passed. This act, coupled with state aid incentives, encouraged nearly 9,000 districts to reorganize by 1958. The number of total districts in 1958 was 1,465 (New York State, 1958). In 1958, The University of the State of New York and The State Education Department jointly published the *Master Plan for School District Reorganization in New York State*. This plan pushed for further school centralization, especially in rural areas of New York. According to the NCES (2012), the State of New York had 719 total districts in 1995 (NCES, 2012). In the 37-year period after the publication of the

Master Plan for School District Reorganization in New York State, the number of districts in the state was cut in half. With the current number of districts resting at 733, it appears that New York State has regressed since 1995. Since 1996, there have been 26 school districts that have successfully reorganized to 11. During that time, 30 other districts have investigated the possibility of, but have not been successful at reorganizing. Of the 733 school districts in New York, nearly half have less than 1,500 students and about 250 have less than 1,000 students (NYSASBO, 2014).

Ohio History of School Mergers

In 1913, the Fifty-Eighth Annual Report of the Commissioner of Common Schools to the Governor of the State of Ohio suggested that rural schools were in poor condition and could not meet the demands of the current day, and that they should be abolished (Self, 2002) . Following this report, a survey of Ohio schools determined, " there were too many small schools in the state and that this high number of small schools was expensive for the state" (Shreve, 1989, p.14). The schools in question were also determined to be ineffective. It was recommended that consolidation be utilized, whenever possible (Self, 2002).

In January 1913, Governor Cox appointed a commission to conduct a survey to determine how efficiently Ohio schools operated. The School Survey Commission delivered its findings to Governor Cox in January 1914. The commission suggested the governor focus on school consolidation, and the supervision and training of teachers in order to increase efficiency (Shreve, 1989). The year following the report there were 2,674 school districts in Ohio. Two

years later many one-room schools began to merge across the state. County school boards started to emerge to handle school consolidation. This pattern continued and, "by 1925 the number of one-room schools had decreased from 9,400 to 5,500" (Self, 2002, p. 7). Districts across the country took a financial blow as a result of the stock market crash of 1929. The ODE reacted by withdrawing funds from any school with less than 14 students (Self, 2001).

Ohio school consolidation continued through the 1930s. By 1940, the number of districts dropped to 1,696. To continue this trend, the Ohio state government passed Ohio House Bill 128. This bill encouraged counties to develop committees to study local school district organization and emphasized the benefits of consolidation. The efforts of this bill helped reduce the number of Ohio school districts to 984 by 1959 (Schmidt, 2011).

The 1960s ushered in another wave of consolidation. The Ohio State Board of Education largely influenced these consolidations (Brasington, 2003). Higher standards developed by the Ohio State Board of Education were unattainable for small under-resourced schools. These efforts brought the number districts in Ohio to 617 in 1973 (Schmidt, 2011). Presently, there are 608 districts in the state of Ohio (ODE, 2019).

Pennsylvania History of School Mergers

The Pennsylvania Department of Education (PDE) does not have large amounts of information on the history of school consolidations/mergers in Pennsylvania (Budzilek, 2008). The coming together of school districts looked different in the early part of the last century. In 1911, "unions" (p. 2) were

introduced as a way to consolidate two or more districts (Leckrone, 2015). The way in which unions were achieved inhibited consolidation because it required "a petition signed by a majority of the school directors of each district desiring union, approval by the State Superintendent of Public Instruction, and finally an affirmative vote [by the electorate] in each district concerned" (Governor's Committee on Education, 1960, p. 15). The approach became more popular when "merged" school districts were created in 1937; however, only 131 unified or merged districts were formed by 1960 (Leckrone, 2015. p. 2).

A statewide effort to reduce Pennsylvania school districts in the 1960s resulted in a decrease from 2,277 to 669 districts in that decade (Joint State Government Commission, 2017). In 1961, Act 561 was adopted and passed to eliminate small school districts; it was repealed in 1963. However, the repeal still focused on consolidation. The Bureau of School District Reorganization was responsible for the reduction of school districts (Leckrone, 2015). The effort continued through the next decade. During the 1970s, "the number of districts again dropped from 669 to 505" (Joint State Government Commission, 2017, p. 48). Federal anti-discrimination litigation forced the consolidation of Churchill Area, Edgewood, General Braddock, Swissvale Area, and Turtle Creek Area to form Woodland Hills to decrease the total number of districts to 501 in 1981 (PSBA, 2009). This number remained until the voluntary merger of the Center and Monaca school districts in 2009. These districts consolidated to become the Central Valley School District dropping the number of Pennsylvania school districts to an even 500.

In November 2008, the Pennsylvania Economy League (PEL), Central Division, prepared a School District Consolidation Checklist for the Pennsylvania School Boards Association. The checklist outlined what districts needed to consider when looking into a merger. This checklist was developed as a result of the struggles that Center and Monaca school districts faced in becoming Central Valley. PEL believed that during the economic decline in 2008 more districts would need a guide through school consolidations. Pennsylvania school code does provide a general outline for school mergers. Section 2-224 of the school code does provide the Board of Directors of any two (or more) school districts to adopt a resolution for merger. The resolution must only be adopted by majority vote, and it must substantially outline the areas to be combined. Once this resolution is adopted, the districts must file an Application for Approval with the Pennsylvania Secretary of Education. The State Board of Education then decides if the approval is appropriate. In order to make the process more seamless, The PEL developed a checklist to help school districts. There are basically three steps in the PEL-suggested process. The first is deliberation. This forces a district to perform a self-assessment. The second step is to identify potential partners. Considerations during this step are geographic and compatibility. The last step is to find allies. Identifying and approaching neighboring districts to sell the idea is often the most difficult step. PEL was able to put the steps on paper as they emerged during the Central Valley consolidation (Pennsylvania Economy League, 2010). In September 2017, Nikolaus and Hohenadel, LLP, Attorneys at Law,

utilized the process to present to the Columbia Borough School District consolidation possibilities (Nikolas & Hohenadel, 2017).

Summary

Research on school district mergers/consolidations is extensive. In less than 100 years, the three states in this study have reduced the total number of districts collectively from 13,951 to 1,841. This amount of reduction reflects the country as a whole. Each one of these decisions brings with it some form of study, research, or report to support the decision that is made. Historically, the scholarly research available on school district mergers is pro-merger. Researchers, school officials, and legislators focus on the following as reasons to merge districts:

- cost savings (economies of scale argument);
- global completion;
- school size;
- available transportation;
- population shift; and
- increased social and academic opportunity

During the peak decades of school mergers (1940-1970), these reasons appear to be justified by the research. Starting in the late 1980s, researchers began to question if school district consolidation had run its course. Decision-makers started to consider

community identity, the large vs. small school debate, as well as the economies of scale argument. Also, during this time student achievement became more a factor than it had been during the height of consolidation. The current study is incorporating the findings of previous researchers and the work they have done on school mergers and student achievement. For the first known time, a meta-analytical approach is being used to determine the effect school mergers have on student achievement.

Chapter 3

Methods

Overview of Meta-Analysis

Meta-analysis refers to statistical synthesis of results from a series of studies (Borenstein, Hedges, Higgins, & Rothstein, 2009). Gene V. Glass (2000) coined the term meta-analysis and is given credit for inventing the approach in the mid-1970s. He insisted, in his January 2000 informational paper, that, "it would have been invented soon thereafter since the volume of research in many fields was growing at such a rate that traditional narrative approaches to summarizing and integrating research were beginning to break down" (Glass, 2000, p. 2). The purpose of a meta-analysis is to analyze multiple studies in order to determine the significance of multiple variables against an outcome variable, specifically, student achievement, for the current investigation. Glass, McGaw, and Smith (1981) explained that a meta-analysis allows for studies with smaller sample sizes to be combined, thus, producing a much larger sample size, which, in turn increases the statistical power (Glass et al.). Meta-analysis was chosen for this study because there have been multiple studies in regard to student achievement and school district mergers in the past 25 years, however, recent district mergers in New York, Ohio, and Pennsylvania have not been a part of those studies.

Glass et al. (1981) outlined three required steps when conducting a meta-analytical study. Step one is to collect and analyze the outcome variables in each study. In order for a study to be used, it must fit pre-determined criteria of the investigation. The research studies must also match the data specific to the

research topic. An exhaustive search for studies that fit these requirements was conducted. Some found that fit the criteria were from outside of the United States.

Step two in conducting a meta-analytical study is to analyze the data. Analyses most often requires that the studies be described, classified, and coded (Glass et al., 1981). A potential error in this step is measurement consistency. Glass et al. suggested coding the studies twice in order to avoid this potential error and establish rater agreement. This is accomplished by preforming a simple correlation, or Kappa analysis, between the different coders' results.

Step three, the first analysis step after establishing rater agreement, is to compute an estimated effect-size measure across all data. This estimated effect-size measure will provide an indication of whether there is homogeneity or heterogeneity across the different data being synthesized. If heterogeneity is found, the next step is to analyze each individual's mean effect-size measure for each research variable studied. Once all the effect-size measures were calculated, the results were analyzed, interpreted, and reported as findings. More specifically, a singular effect-size measure was computed for all of the studies followed by individual effect-size measures for each of the moderator variables.

A more linear approach to conducting a meta-analytic study is described by Lipsey and Wilson (2001), in seven basic steps:

- Defining the problem - topic, empirical relationships of interest, type of research, and acceptable methods;

- Defining the population of relevant studies and determining eligibility criteria;
- Locating and retrieving eligible studies – attempt to obtain entire population, published and unpublished;
- Developing and testing a coding scheme and coding manual;
- Coding eligible studies; constructing a database;
- Statistical analysis of the meta-analytic data; and
- Interpretation and reporting of analysis results

The overall use and integration of the methods proposed by both Glass et al. (1981) and Lipsey and Wilson (2001) improved the validity and reliability of this investigation (Glass et al.; Lipsey & Wilson, 2001).

Effect size estimates for the extant data were computed using Comprehensive Meta-Analysis© (CMA). Available data in the published research were extracted and the effect size estimate for each was computed for the current investigation using reported effect size measures, reported means, standard deviations and sample sizes, or reported correlational analysis results (such as those reported in multiple regression) and reported p-values. These individual effect size measures were computed using Cohen's d. This effect size measure is computed and appropriately weighted based on the reported sample size in CMA.

Effect size estimates for the primary data were computed using odds ratios. Odds ratios are used to compute effect sizes when the data presented has two binary variables. The odds ratio is calculated by dividing the odds of the first

group by the odds in the second group. For the current investigation, primary data presented time (pre- or post-merger) and performance (proficient or not proficient).

Once each existing study's data was entered into CMA, the effect size measures were computed for each available measure. School district results were aggregated by hand in excel, and input into CMA. An odds ratio was computed for each grade level, and for each reported moderator in CMA. After the individual analyses were completed for both the extant data and the primary data, aggregate analyses were computed to address each research question based on imputed codes. Codes were created for race, grade level, primary and secondary level data, years beyond merger, and state of study.

Research Questions

The purpose of the current study was to examine the standardized test results of students (grade three to grade eight) pre- and post-school district mergers in order to see if the merger had impact on student achievement. The overall comparison of test results, before and after mergers, was of interest; breaking down the data to consider specific demographic comparisons was also conducted. In order to examine the multiple variables against the outcome variable of student achievement, data from the studies were meta-analyzed to examine the following primary research questions:

1. Based on standardized test results, is there an overall change in academic achievement of districts pre- and post-merger?

2. Based on standardized test results, is there an overall change in academic achievement of students pre- and post-merger?

3. Based on standardized test results, is there a subgroup that performed differently pre- and post-merger? Specifically, are there student group, or school characteristics that results in different impacts from the merger?

4. Based on standardized test results, is there a grade level that shows better academic achievement in pre- and post-merger districts?

5. Based on standardized test results, is there a difference in overall achievement of students in the states used in the study (New York, Ohio, and Pennsylvania) in pre- and post-merger districts?

Sample of Studies (Participant Data)

The studies for the current investigation were found using electronic search engines and data bases such as: Google Scholar, ERIC, EBSCO, and Dissertation Abstracts. Searches included data generated between 2006 and 2018. The search descriptors included such phrases as: school district consolidation and student achievement, school district mergers impact on student achievement, and school size as it relates to student achievement. Abstracts, summaries, and table of contents of articles were reviewed in order to determine which studies would be considered. The inclusion criterion for the current investigation was school districts that had assessment data before and after a school district merger.

Articles were coded in an effort to address all proposed research questions. Student achievement data were used in the metric provided in the research or decomposed for inclusion as needed. All the calculations for this investigation were computed using Comprehensive Meta-Analysis ©.

Data were provided for the investigation by merged school districts from the states of New York, Ohio, and Pennsylvania. State assessment results that were available for students in Grades three through eight were compiled from districts in the aforementioned states that had experienced a merger since the year 2004. Data were collected for up to three years before and three years after the year of the merger. Pennsylvania and Ohio each had one district representing these requirements; New York had five districts meeting these requirements. All state assessment data were gathered directly from each state's department of education. In order to obtain the PSSA data for Center, Monaca, and Central Valley, direct contact with individuals via email was necessary. Bettsville Local, Old Fort Local, and the consolidated Old Fort Local district assessment data were obtained through the ODE website. District report cards were used as well as building value added spreadsheets. The New York State Department of Education website houses all assessment data for all districts dating back to 1999. The data for the three states in this study were taken from each state's department of education in way or another.

Central Valley School District is located in western Pennsylvania. It was formed in 2009 when the Monaca and Center Area school districts merged (PSBA, 2009). Sample sizes from the Monaca, Center, and Central Valley were

used for the current study. Pennsylvania System of School Assessment (PSSA) results were gathered for Monaca and Center students in Grades three through eight, in both reading and math from 2004 to 2008. PSSA results were also compiled for the newly formed Central Valley School District from 2009 to 2013. Data were also broken down according to available demographics which included: sex, race, IEP, and the economically disadvantaged.

In Ohio, the Bettsville School District merged with the Old Fort Local School District in 2014 (McCray, 2014). The newly formed district did take the name of the larger of the two districts, Old Fort Local. In order to compare student achievement for the current study, student data were gathered from the ODE school-year report cards. In the years prior to the merger, consistent data were available for Grades three through six in both reading and math. Data were also broken down according to available demographics which included: sex, IEP, and economically disadvantaged. Race was not included because subgroups were not high enough in number to require reporting.

There have been five New York State school districts that have merged since 2004. Data from the mergers in New York were obtained from the New York State Education Department website. The website houses district state assessment data dating back to 1998. Only data from students in Grades four and eight are available on the annual district performance report for districts in New York. Math and reading results were used as they were in the other states used in the study. Included in the report is a breakdown of student subgroups. The subgroups used in this study were: race, IEP, sex, and economically

disadvantaged. Listed below are the districts that merged, the year of the merger, and the name of the resulting district (NYSASBO, 2014):

- Canisteo School District and Greenwood Central School District merged in 2004 to form the Canisteo-Greenwood School District;
- Eastport Union Free School District (K-6), South Manor Union Free School District (K-6), and Eastport-South Manor Central High School District (7-12) merged in 2004 to become Eastport-South Manor Central School District;
- Maplewood Common School District was annexed by North Colonie School District in 2008 to become North Colonie School District;
- Oppenheim-Ephratah School District and St. Johnsville School District merged in 2013 to become Oppenheim-Ephratah- St. Johnsville School District; and
- Ilion School District and Mohawk School District merged in 2013 to become Central Valley School District

Instrumentation

For this study, state assessment data were used from New York, Ohio, and Pennsylvania between the years 1998 and 2018. During this time period, state assessments were influenced by major changes in the educational landscape of the nation. No Child Left Behind (NCLB, 2001) was passed by President George W. Bush, in 2002. This piece of legislation required statewide standardized tests of all schools receiving federal funding. In 2015, President Barack Obama signed the ESSA. This was a continuation of NCLB emphasizing career readiness, and still requiring standardized assessments as a form of accountability for schools receiving federal funds (DOE, 2019). The development of the Common Core

Standards by the National Governors' Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO), in 2009, also influenced state assessments in the past decade (Core Standards, 2019).

State assessments in New York date back to 1865 when the first Regents Exams were given as high school entrance exams. In 1966, New York administered the first standardized assessment to third- and sixth-grade students. These assessments were called Pupil Evaluation Program (PEP) Tests. In 1999, the state issued statewide assessments in ELA and math to students in fourth and eighth grade. Finally, in 2006, these tests were given to all students in Grades three through eight. New York State Performance Reports do refer to the state assessments in Grades three through eight as Regents Exams. The state performance reports classify student achievement by levels 1, 2, 3, or 4. Level 1 describes a student in "serious academic deficiencies." Level 2 achievement places a student in "need of extra help." Level 3 students "meet the standards", and level 4 students "exceed the standards." Level 3 and 4 students are determined to be proficient, which is the standard used to identify students who are achieving at an acceptable level. Table 3 shows New York State assessment data available for those districts that would eventually merge with another district (New York State Education Department, 2019). Table 4 shows the available data for newly merged districts.

Table 3.

New York School District Pre-Merger Regents Examination

School District (Merger Year)	Years	Grades	Subject
Canisteo SD (2004)	1999-2004	4, 8	ELA, Math
Greenwood Central SD (2004)	1999-2003	4, 8	ELA, Math
Eastport Union Free SD (K-6) (2004)	1999-2004	4	ELA, Math
South Manor Union Free SD (K-6) (2004)	1999-2003	4	ELA, Math
Maplewood Common SD (2008)	2000-2005	4, 8	ELA, Math
North Colonie SD (2008)	1998-2000	4,8	ELA, Math
Oppenheim-Ephratah SD (2013)	2009-2012	3-8	ELA, Math
St. Johnsville SD (2013)	2009-2012	3-8	ELA, Math
Ilion SD (2013)	2008-2012	3-8	ELA, Math
Mohawk SD (2013)	2008-2012	3-8	ELA, Math

Table 4.

New York School District Post-Merger Regents Examination

School District (Merger Year)	Years	Grades	Subject
Canisteo-Greenwood SD (2004)	2005-2009	3-8	ELA, Math
Eastport-South Manor Central SD (2004)	2005-2009	3-8	ELA, Math
North Colonie SD (2008)	2008-2012	3-8	ELA, Math
Oppenheim-Ephratah St. Johnsville SD (2013)	2014-2018	3-8	ELA, Math

Central Valley SD (NY) (2013)	2014-2018	3-8	ELA, Math

The ODE has archived school district report cards since 2002. From 2002, to 2010, the state assessment given to students in Grades three through eight, in Ohio, was known as the OAT. In 2010 the name was changed to the OAA. Both assessments reported student achievement on the school district report cards in the following order: limited, basic, proficient, accelerated, and advanced. The key reporting benchmark as stated on the district report card is at or above proficient. Tables 5 and 6 provide the OAA data (pre- and post-merger) that were available and used for this study (ODE, 2019).

Table 5.

Ohio School District Pre-Merger OAT and OAA

School District (Merger Year)	Years	Grades	Subject
Bettsville Local School District (2014)	2009-13	3-8	ELA, Math
Old Fort Local School District (2014)	2009-13	3-8	ELA, Math

Table 6.

Ohio School District Post-Merger OAA

School District (Merger Year)	Years	Grades	Subject
Old Fort Local School District (2014)	2014-18	3-8	ELA, Math

Statewide, standardized assessment actually began in Pennsylvania in the 1969-70 school year with an assessment known as Educational Quality Assessment (EQA); this test was given through the 1987-88 school year. A state-mandated, student competency testing program called Testing for Essential Learning and Literacy Skills (TELLS) also operated from the1984–85 through 1990–91 school years. The current state assessment for students in Grades three through eight is the PSSA, dating back to 1992. Through the years, it has been altered to follow the various changes in legislation. Like Ohio, the key reporting benchmark is at or above proficient. Students who take the test will fall into one of the following reporting categories: below basic, basic, proficient, and advanced. Tables 7 and 8 provide the PSSA data (pre- and post-merger) that were available and used for this study (PDE, 2019).

Table 7.

Pennsylvania School District Pre-Merger PSSA

School District (Merger Year)	Years	Grades	Subject
Monaca School District (2009)	2005-09	3-8	ELA, Math
Center Area School District (2009)	2005-09	3-8	ELA, Math

Table 8.

Pennsylvania School District Post-Merger PSSA

School District (Merger Year)	Years	Grades	Subject
Central Valley School District (2009)	2010-14	3-8	ELA, Math

In order to make direct comparisons, analysis will be required to standardize the raw data. Coupling the raw data from New York, Pennsylvania, and Ohio, with the 12 studies completed by other researchers will provide new information about the relationship between school district mergers' and student achievement. A meta-analysis has never been known to be used to investigate the effects of school mergers have on student achievement.

Summary

A meta-analytical study on the impact school district mergers have on student achievement was conducted utilizing raw data from districts in New York, Ohio, and Pennsylvania with pre-existing data from 12 studies. Pre-existing data were coded in an effort to address all proposed research questions; calculations for this investigation were computed using Comprehensive Meta-Analysis. Raw data consisted of student results on statewide standardized assessments in pre- and post-merger school districts. Data consisted of student achievement from New York, Ohio, and Pennsylvania in Grades three through eight. Data used were limited to the academic subjects of ELA and math.

Chapter 4

Results

The purpose of this quantitative study was to determine if changes occur in the results of standardized state assessment scores of students in school districts before and after a school district consolidation, in order to determine if there is a relationship between student achievement and school district consolidation. Specifically, the study focused on primary student state assessment results three years before and after school district mergers in the states of New York, Ohio, and Pennsylvania since 2000. Additionally, this investigation incorporated the secondary data from previous studies investigating the relationship between student achievement and school consolidation.

Student achievement data were obtained for New York and Ohio through each state's department of education website. In order to obtain student data in Pennsylvania, a request was made to the PDE and the Bureau of Curriculum, Assessment, and Instruction for PSSA results in the subjects of Grades three through eight math and ELA tests. The achievement data of students in Grades three through eight who are economically disadvantaged, and/or belong to a minority racial category from school districts three years prior to school consolidation and three years after consolidation were used in this study.

Research Questions

The research questions for this study were as follows:

1. Based on standardized test results, is there an overall change in academic achievement of districts' pre- and post-merger?

2. Based on standardized test results, is there a subgroup that performed differently pre- and post-merger? Specifically, are there student groups' (historically underserved or economically disadvantaged) differences?

3. Based on standardized test results, is there a grade level that shows better academic achievement in pre- and post-merger districts?

4. Based on standardized test results, is there a difference in overall achievement of students in the states used in the study (New York, Ohio, and Pennsylvania) in pre- and post-merger districts?

Descriptive Statistics

- Twelve pre-existing studies were considered to use as secondary resources for this study. All 12 studies compared student achievement data pre- and post-school district consolidation. After further review of the articles, it was decided that six of the studies would not be used. Four of the six were studies conducted outside of the United States (Beuchert, Humlum, Nielsen, & Smith, (2018).
  The short-term effects of school consolidation on student achievement: Evidence of disruption? *Economics of Education Review*.
  https://doi.org/10.1016/j.econedurev.2018.05.004
  De Haan, M., Leuven, E., & Oosterbeek, H. (2016). School consolidation and student achievement. *Journal of Law, Economics, and Organization*.
  https://doi.org/10.1093/jleo/eww006

HayGroup. (2006). *Staying on track: Securing the performance of schools after merger and amalgamation*. Retrieved from www.haygroup.co.uk/education.

Liu, C., Zhang, L., Luo, R., Rozelle, S., & Loyalka, P. (2010). The effect of primary school mergers on academic performance of students in rural China. *International Journal of Educational Development*. https://doi.org/10.1016/j.ijedudev.2010.05.003).

The fifth and sixth study focused on high school results: (Marchbank, S. A. (2015). *Mixed methods case study of consolidation effects on a rural Maryland school*. *ProQuest Dissertations and Theses*, (May), 144. Retrieved from https://search.proquest.com/docview/1705805552?accountid=10673%0Ahttp://openurl.ac.uk/redirect/athens:edu/?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:dissertation&genre=dissertations+%26+theses&sid=ProQ:Education+Database&atitle=&title=Mixed+met

Brummet, Q., Paper, J. M., Bartalotti, O., Burkander, P., Dieterle, S., Dynarski, S., … Schneider, B. (2012). *The Effect of School Closings on Student Achievement.* This study utilized results between third and eighth grade. Seventeen viable samples were obtained from articles to be used as secondary resources. These include:

- Barnette, L. H. (2016). *A case study of the consolidation of five North Carolina school districts: motivations, processes, and impact*. This study investigated consolidation in North Carolina. It was included in the present study because it included elementary achievement data before and after consolidation.
- Cooley, D., & Floyd, K. (2013). Small rural school district consolidation in

Texas: An analysis of its impact on cost and student achievementT. *Administrative Issues Journal Education Practice and Research*, *3*, 45–63. https://doi.org/10.5929/2013.3.1.2. This study analyzed student acheivement data before and after district mergers in Texas. The data anylzed included student results in Grades three through eight. This study was included in the present study.

- Cox, B., & Cox, B. (2010). A decade of results: A case for school district consolidation? *Education*, *131*(1), 83–91. This study analyzed student achievement data for Grades three through 12 over a 10-year period. The results from this investigation were used in the current study.
- Duncombe, W. D., & Yinger, J. M. (2001). Does school consolidation cut costs? *Center for Policy Research*, *33*, 59. This study analyzed student achievement results in consolidated school districts over a 12-year period. This study was included in the current investigation.
- Gilliland, D. (2008). The effects of consolidation on Illinois school districts, 153–164. This Illinois study looked at rural school district consolidation. The results were used in the current study.
- Mills, J. N., McGee, J. B., Foundation, J. A., & Greene, J. P. (2013). An analysis of the effect of consolidation on student achievement:Evidence from Arkansas. Retrieved from Google Scholar. This study focused on student achievement in consolidated ditricts in regards to school size. The results were included in the current investigation.

Primary data consisted of standardized state assessment results from districts experiencing mergers in New York, Ohio, and Pennsylvania since 2000. Each state sets a level of proficiency. Results for this study were presented in this study as proficient or non-proficient from the pre- and post-merger districts. Overall results, as well as the following subgroups: Black, Hispanic, economically disadvantaged, non-economically disadvantaged were used for the study. Data were collected three years before and after district mergers. A total of 540 samples were collected as primary data.

Effect Size Estimates

Effect size estimates for the extant data were computed using Comprehensive Meta-Analysis©. Available data in the published research were extracted and the effect size estimate for each was computed for the current investigation using reported effect size measures, reported means, standard deviations and sample sizes, or reported correlational analysis results (such as those reported in multiple regression) and reported p-values.

Effect size estimates for the primary data were computed using odds ratios. Odds ratios are used to compute effect sizes when the data presented has two binary variables. For the current investigation, primary data presented time (pre- or post-merger) and performance (proficient or not proficient).

Meta-Analysis Findings

The data were analyzed for the overall effect of school mergers by examining assessment data for students in Grades three through eight The first analysis examined the overall effect, and found that pre to post merger, a random

effects model reveals no effect on students' assessment data, $d = .021$, $p < .001$. While the effect measure from pre to post was found to be statistically different, this small significant result is impacted by the large sample of data under consideration. For this investigation, the evaluation of the effect size measures will be based on the recommendations of Field (2009) in which .01 is small, .03 is moderate, and .05 or larger is large.

Table 9 provides the effect from pre to post separately for the primary data (i.e. state data) and the secondary data (i.e., published results).

Table 9.

Primary and Secondary Effect Size Estimates

Variable	*f*	*D*	s.e.	Lower	Upper
Primary	540	-0.001	0.03	-0.06	0.05
Secondary	17	-0.059	0.05	-0.15	0.03

As indicated above, there is a very small effect from pre- to post-standardized test results whether looking at primary or secondary data.

Table 10 provides the effect size measure based on years beyond the school merger for all studies.

Table 10.

Years Beyond Merger

Years	*f*	*d*	s.e.	Lower	Upper

1	177	-0.27	0.05	-0.37	-0.17
2	180	0.02	0.04	-0.05	0.09
3	186	0.25	0.04	0.17	0.34
9	3	0.01	0	0.01	0.02

As seen in Table 10, one year beyond the measure shows a negative effect size of -0.27, however three years beyond the merger reveals a 0.25 positive effect size. Interestingly the data available for nine years out shows no effect. However, this data is based on only one pre-existing study (Cox & Cox, 2010).

Table 11 provides effect size measure of historically underserved groups

Table 11.

Effect Size Measures By Historically Underserved Groups

Race	*f*	*d*	s.e.	Lower	Upper
Black	36	0.05	0	-0.07	0.17
Hispanic	21	0.06	0	-0.04	0.16
Other /NonWhite	2	0.02	0	0	0.05

As indicated above, the effect size measures for all of the underserved groups indicate no effect from pre to post for all groups.

Table 12 however, provides a breakdown of effect size measure by grade for only black students; third grade does stand out in this group.

Table 12.

Black by Grade Level

Grade	*f*	*d*	s.e.	Lower	Upper
3	4	-0.84	0.46	-1.75	0.07
4	4	0.31	0.19	-0.07	0.68
5	6	0.15	0.26	-0.37	0.66
6	6	0.15	0.23	-0.31	0.6
7	8	0.13	0.2	-0.26	0.52
8	7	0.18	0.15	-0.12	0.48

As seen above, there is a large negative impact revealed for third grade Black students (-0.84) followed by a moderate positive effect size measure for fourth grade Black students. All other grade levels reveal a small positive effect. Table 13 provides data for only Hispanic students by grade level.

Table 13.

Hispanic by Grade

Grade	*f*	*D*	s.e.	Lower	Upper
3	13	0.07	0.18	-0.29	0.42
4	4	0.05	0.39	-0.71	0.81
5	2	0.11	0.33	-0.54	0.76
7	2	-1.86	0.62	-3.08	-0.65

As indicated above, seventh grade students' data revealed a large negative effect for pre to post merger. It should be noted that this data was only available from two of the pre-existing studies (Cooley & Floyd ,2013, Mills, 2013). Economically disadvantaged student results were examined and revealed a -.05 effect from pre- to post-merger based on N=124 cases.

Table 14 provides a breakdown of economically disadvantaged by grade level.

Table 14.

SES by Grade Level

Grade	*f*	*d*	s.e.	Lower	Upper
3	31	0.21	0.15	-0.08	0.5
4	35	-0.05	0.11	-0.26	0.16
5	27	0.15	0.13	-0.11	0.4
6	24	0.15	0.14	-0.13	0.44
7	27	0.01	0.15	-0.29	0.3
8	31	-0.22	0.14	-0.49	0.04

As indicated above third grade student data who are economically disadvantaged reveal a small positive effect from pre- to post-merger, however eighth grade students show an equally negative effect.

Table 15 provides data for all students broken out by grade level.

Table 15.

Effect Size Measures by Grade

Grade	*f*	*D*	s.e.	Lower	Upper
3	95	0.09	0.07	-0.05	0.23
4	120	0.07	0.04	-0.01	0.15
5	88	0.05	0.06	-0.08	0.18
6	75	-0.01	0.07	-0.14	0.12
7	77	-0.03	0.07	-0.17	0.1
8	93	-0.18	0.06	-0.3	-0.07
3-8th	3	0.01	0	0.01	0.02

Note. 3rd - 8th grade data from Cox & Cox (2013)

Noteworthy is that eighth-grade student data show a small, significant negative effect, whereas data from other grades reveal no practical effect. Table 16 provides the effect size measures for each state.

Table 16.

Effect Size Measures by State

State	*f*	*d*	s.e.	Lower	Upper
New York	487	-0.01	0.03	-0.07	0.04
Ohio	29	-0.07	0.1	-0.27	0.13
Pennsylvania	24	0.25	0.1	0.05	0.45

Student effect-size data by state reveal a significant positive effect (.25) in the pre- to post-results in Pennsylvania. Effect size data reveal no significant effect in New York and Ohio.

Summary

The findings of the current study are similar to well-established trends regarding student achievement and school district consolidation. Overall, the results indicate no significant effect in student assessment results before and after school district consolidation. These findings are similar to that from previous studies. There are data that do show differences, both positive and negative, when comparing different subgroups. For example, the years-beyond-merger data

examine scores one, two, three, and nine years (Cox, 2013) out from the merger. A positive effect measure appears in students' data three years out from the merger, however, year one reveals a negative effect. Other positive measures are in the results of third-grade economically disadvantaged students assessment data, pre- to post-merger. Likewise, assessment data for fourth-grade Black students are positive pre- to post-merger. Primary data comparisons reveal a positive effect size in Pennsylvania; effect sizes from the results in New York and Ohio approximate zero. The effect size for third-grade Black students' assessment data reveals a large negative effect size; this same pattern is found with seventh-grade Hispanic students. Assessment data from economically disadvantaged students in eighth grade show a slight negative effect size. Chapter 5 will expound on these results, discuss the context and implication of the findings, and offer suggestions for future research.

Chapter 5

Discussion and Conclusions

The final chapter of this study focuses on the following sections: summary, context of findings, implication of findings, limitations, and future directions. In the summary section overall findings of the study and whether or not the findings supported the research questions are discussed. The context of the findings' section will stress the meaning of the results. This was done by comparing the findings in this study to findings in prior studies, as well as considering concepts proposed discovered in the literature review. The implications section revisits variables and also explores alternative explanations of results and educational implications. The limitations section addresses shortcomings in the design, or that are revealed during the data analysis. The future findings section suggests avenues research directions and other extensions of the current study.

Summary of Findings

The purpose of the study was to determine whether a relationship existed between school district consolidation and student achievement when comparing state assessment results before and after consolidation. The first research question considered this relationship in terms of all students. The pre-merger data were used as the benchmark and the post-merger results were used as a comparison. Both pre- and post-merger data relied on each state's proficiency levels to determine an acceptable student achievement threshold. Data were comprised of

secondary sources from eight prior studies and primary sources from six different school-district mergers. When considering pre- and post-merger data in terms of proficiency, similar results were identified in secondary and primary sources. A very small negative effect presents itself in both data sources. Years beyond merger was another area of comparison. A negative result was identified one year from the merger, but three years after merging the results revealed a positive effect. When considering overall primary and secondary data, along with the effect size from one year beyond the merger, a negative trend appears to emerge with overall data. However, data from two and three years beyond district mergers reveal a positive effect size, increasing from year two to year three.

This study also considered whether a relationship existed in the pre- and post- data results of various subgroups. The following subgroups were specifically considered: Black, Hispanic/Latino, and economically disadvantaged. Results for the two historically underserved subgroups in regard to race (Black and Hispanic/Latino) indicate no effect in pre- and post-merger results. These same subgroups were also analyzed according to grade. The data reveal that there is a large, negative relationship between pre- and post- merger data for Black students in third grade, but a moderate, positive relationship for fourth-grade Black students. For Hispanic/Latino students, significant data were only available for Grades three, four, five, and seven. Seventh-grade Hispanic/Latino students showed a large negative relationship in pre- and post-merger achievement results. Pre- and post-merger achievement results in terms of the economic status of students were also considered. Economically disadvantaged students experienced

no effect in pre-merger results to post-merger results. When analyzed by grade level, economically disadvantaged students in third and eighth grade showed an opposite effect. Third-grade economically disadvantaged students present a small, positive effect, while eighth-grade students in the subgroup reflect a nearly identical negative result.

Findings representing overall student data by grade as well as comparing results by state were investigated. Effect size measures of overall students by grade reveal a decline each year, however there is no practical effect until eighth grade. Eighth-grade student results show a small significant negative effect. The pre- and post-merger results from New York, Ohio and Pennsylvania yielded no significant effect in two of the states: New York and Ohio. The results from Pennsylvania reveal a strong, positive effect measure.

Overall, some portions of the findings supported the research questions, and other portions did not. For example, the results of state assessments representing years beyond mergers indicate a positive effect three years after a district merger. Pre- and post-assessment results representing students in the identified minority groups, Black and Hispanic, reveal no effect size in either group. However, when results in these groups are analyzed by grade, a large negative effect was discovered in third-grade Black students, and a moderate, positive effect for Black students in fourth grade. Seventh-grade Hispanic students showed a large, negative effect. Economically disadvantaged students show no effect in Grades two through seven. In third grade, this group shows a small, positive effect, while the eighth graders in this group show a small,

negative effect. The results representing the states of New York, Ohio, and Pennsylvania in the study, do reveal a significant, positive effect for the results for students in Pennsylvania.

It should be reported that the absence of significant effect size also provides insight into the relationship between school district consolidations and student achievement. The current study produced 35 effect size measures. Of these 35 data points, 27 were posted a negligible effect size. With 77% of these results having little or no effect, the data does suggest that a relationship does not exist in the majority of categories investigated.

Context of Findings

The results of the current study support the findings of other investigations of student achievement and school consolidation. The secondary resources used in this study reveal an overall small, negative relationship in regard to student achievement and school district consolidation. Primary resources used in the study do not contradict this result; the negative effect is not as large. When subgroup (Black, Hispanic, and economically disadvantaged) results are compared to the results of students of the majority (White) there is no significant difference in achievement. However, digging deeper into the data in terms of grade level, years-beyond-merger, and primary data from New York, Ohio, and Pennsylvania does reveal differences to consider.

Three prior studies, Cox and Cox (2010), Duncombe and Yinger (2001), and Barnette (2016) investigated the long-term implications of school-district

mergers. Both studies considered data over a 10-year period or greater. The results of the current study in terms of time do reflect very small effect size as do the prior studies. Duncombe and Yinger (2001) reported a very small positive effect; Cox and Cox (2010) reported that that consolidation did not have an overwhelming positive effect on student results. The current study reveals a very small negative effect. Interestingly, when analyzing the years beyond merger, a trend does appear. One year beyond the merger shows an overall dip in performance, with a recovery occurring three years beyond merger. This dip could be explained as a transitionary decline in performance. Job training programs have experienced similar declines and refer to the dip as the "Ashenfelter Dip" (Ashenfelter, 1978). Barnette's (2016) investigation of North Carolina districts yielded opposite results. She reported an increase in scores one year after merging, and a steady decline in student achievement from that point forward.

Gilliland (2008) heavily reported on results of eighth grade students in Illinois. This study suggested that after school consolidation the achievement of eighth-grade students increases. The results of various groups of eighth-grade students in the current study have varying results in terms of the Gilliland (2008) investigation. Overall eighth-grade achievement shows a negative effect size (-0.18) from pre- to post-merger results. Economically disadvantaged students in eighth grade also show a negative effect size (-0.22). However, eighth-grade Black students in the current study align to the results that Gilliland (2008) reported. The Gilliland (2008) report did not include subgroup results.

Hispanic student results were the most underrepresented in the study. Only two secondary studies, Cooley and Floyd (2013) and Mills et al. (2013) contained data for Hispanic students by grade. Hispanic numbers in primary sources were low in most grades and non-existent in Grades six and eight. The current study does indicate that as Hispanic students reach seventh grade there is an increasing, negative effect size after school district consolidation. This trend is present in secondary studies as well.

New York, Ohio, and Pennsylvania are the states in the current study that primary student result data were obtained. The years ranged from 1999-2017. Two of these states, New York and Ohio, reveal no significant relationship between student results due to school district mergers. Pennsylvania does show a positive effect size of 0.25. Six prior studies represent five other states. Duncombe and Yinger (2001) conducted their study in New York. The results of that study (1985-1997) show a small positive relationship in student achievement as a result of district mergers. This differs from the results for New York in the current study. Illinois (Gilliland, 2008) and Arkansas (Mills, 2013) both showed small positive results in relationship to student achievement and school district consolidation. Tennessee (Cox & Cox, 2010) reported that there was no overwhelming positive effect. Texas (Cooley & Floyd, 2013), and North Carolina (Barnette, 2016) reported a decrease in overall achievement.

Implications of the Findings

The overall findings in the current study are consistent with research conducted on student achievement in relationship to school district consolidation. Pockets of data in this study do challenge some results from previous studies. The study does provide future researchers and school district decision-makers with more information in regard to student achievement and school consolidation. Specifically, the study provides more current data and more information on specific subgroups' results, achievement by grade, and adds the states of Pennsylvania and Ohio to existing data.

A natural byproduct of school consolidation is an increase in school size. Cotton's (1996) study of elementary schools in Indiana that experienced a shock to enrollment (some due to consolidation) found that increasing the size of the schools significantly lowered student achievement. The current study does not support Cotton's (1996) findings. There was not a significant drop in student results in pre- and post-test data.

Limitations

The limitations of this study are reflected in the pre-existing data that were available based on the states chosen as primary and secondary sources from prior studies. Primary source data did represent subgroups equally. The low sample size for Hispanic and Black students, as well as a large sample size for White students had a relationship on the effect size for each group. This was the case in both primary and secondary resources. The researcher also limited the data by

focusing on Grades three through eight. High school student achievement data are available; however, it was not used in this study. Classifying students as either economically disadvantaged or non-economically disadvantage limits the categorizing of students based on income. Creating more groups in this category may reveal where the achievement gap begins. Similarly, classifying students as either proficient or not proficient limits the ability of the researcher to identify when a gap in achievement appears. Another limitation of the study that was limited by the researcher was comparing gender results. Finally, the current study did not account for combinations of composition factors. A student could represent more than one subgroup. This could create a compounding effect in the results.

Future Research

Recommendations for future research into the relationship between student achievement and school district mergers can be found in the results of the current study. The overall results of the secondary and primary resources indicate that there is a very small relationship between student achievement and school district mergers. Other studies also support the trend of a dip after the first of a merger, then a rebound in following years. When digging deeper into the results of the current study, an avenue of future research should be minority groups. Why do third-grade Black students show a large negative effect size? Why do eighth-grade Black students show a positive effect size, and every other subgroup of eighth graders in the study show a negative result? When considering effect size by grade, why is there a positive effect in Grades three

through five, and negative effect in Grades six through eight? And finally, when considering the overall results from New York (-0.01), Ohio (-0.27), and Pennsylvania (0.25), why is Pennsylvania's results significantly positive? These questions are exposed in the current study but left unanswered.

The current study also indicates further investigation into school size. The school districts involved in this study were considerably small. In the 2017-18 school year, four years after its merger, Old Fort Local in Ohio listed 611 students in K-12. The Central Valley School District in Pennsylvania has sustained over 2,000 students since its merger in 2009. The five New York school districts in the current study each have a K-12 student population of less than 1,500. In 1981, advocates of consolidation believed that an efficiently run high school should have a student population between 1000 and 2000 students (Fox, 1981). Lee and Smith (1997) found that the high school size maximizing student performance gains is between 600 and 900 pupils for both high- and low-socio-economic status (SES) students (Lee & Smith, 1997). In a study by Andrews, Duncombe, and Yinger (2002), moderately-sized schools (elementary schools of 300-500 and high schools of 600-900 students) may have counteracted the negative effects of larger schools. When considering maximums and minimums of entire school districts, Lawrence et al. (2002) suggested the student enrollment should not exceed 4,000 to 5,000. With the enrollment of the districts in the current study on the low end, the question to consider is, is there a threshold to student enrollment and its relationship to student achievement?

Finally, to add to the body of research on the relationship between school consolidation and student achievement a qualitative study should be done to investigate unifying extra-curricular or social situations that occur, or do not occur, when districts consolidate. In the current study, the Pennsylvania consolidation (Central Valley) boasted a positive effect of 0.25. New York and Ohio mergers were both negative, -0.01 and .-0.07 respectively. In 2009, the year of the Central Valley (PA) merger the high school football team won the Western Pennsylvania Interscholastic Athletic League (WPIAL) championship. This championship is one that Monaca (the smaller school in the merger) had won in the past; the championship was something that Center (the larger district in the merger had never won. Did this unifying event help mold the two districts into one? Do other school district consolidations that experience success have similar unifying events? Are there counter-examples that are present in consolidations that show a negative effect? The results of an investigation of this type could suggest to districts considering consolidation to find a common ground, outside of the classroom, to build on.

Conclusion

School district decision-makers have turned to school district mergers for over a century as an answer to school improvement (Rooney & Augenblick, 2009). These decision-makers: superintendents, school board, and/or local and state legislatures may not always have all the data needed to make an informed decision. Researchers have considered the financial advantages and disadvantages of school district mergers. This usually results in a discussion of

economies of scale. School size is another pursuit of some researchers. Most site increased academic and social opportunity as a result of school district larger schools. The intent of this study was to add to the research focusing on the relationship between student achievement and school consolidation. Unfortunately, this is underserved focus in the conversation about school district consolidation. The overall results of the study seem to indicate that over a period of time student achievement recovers. This is supported by the negligible negative effect of the primary and secondary sources. This is seconded by the three-year rebound seen in the years-beyond-merger data. However, there are findings in certain grades and subgroups that warrant more investigation. The information in this study and subsequent studies could provide the data necessary for future decision-makers to make the right choice for their district.

References

Allensworth, E. M., Moore, P. T., Sartain, L., & de la Torre, M. (2017). The educational benefits of attending higher performing schools: Evidence from Chicago high schools. *Educational Evaluation and Policy Analysis*, *39*(2175–2197).

Alsbury, T. L., & Shaw, N. L. (2005). Policy implications for social justice in school district consolidation. *Leadership and Policy in Schools*, *4*(2), 105–126.

Andrews, M., Duncombe, W., & Yinger, J. (2002). Revisiting economies of size in American education: Are we any closer to a concensus? *Economics of Education Review, 21*(3), 245-262.

Ashenfelter, O. (1978). Estimating the effect of training programs on earnings. *Review of Economics and Statistics 60(1)*, 47-57.

Ashbury, D. (2011). *School consolidation: A study by the Ohio school board association*. Retrieved from https://doi.org/10.1111/j.1744-1617.2010.01348.x

Bard, J., Gardener, C., & Wieland, R. (2006). NREA - history, summary, and conclusions re-consolidation. *The Rural Educator*, *27*(2), 40–48.

Barker, R., & Gump, P. (1964). *Big school, small school: High school size and student behavior*. Stanford, CA: Stanford University Press.

*Barnette, L. H. (2016). *A case study of the consolidation of five North Carolina school districts: Motivations, processes, and impact*. (Doctoral dissertation). Appalachian State University, Boone, NC.

Berry, C. (2004). School inflation. *Education Next*, *4*(4). Retrieved from https://search.proquest.com/openview/11980151f0c51416e28a255a149064ed/1?pq-origsite=gscholar&cbl=1766362

Berry, C. R., & West, M. R. (2010). Growing pains: The school consolidation movement and student outcomes. *Journal of Law, Economics, and Organization*. Retrieved from https://doi.org/10.1093/jleo/ewn015

Beuchert, L., Humlum, M. K., Nielsen, H. S., & Smith, N. (2018). The short-term effects of school consolidation on student achievement: Evidence of disruption? *Economics of Education Review*. Retrieved from https://doi.org/10.1016/j.econedurev.2018.05.004

Borenstein, M., Hedges, L. V, Higgins, J. T., & Rothstein, H. R. (2009). *Introduction to meta-analysis*. Retrieved from https://doi.org/10.1016/B978-0-240-81203-8.00002-7

Brasington, D. M. (2003). Size and school district consolidation: Do opposites attract? *Economica*, *70*(280), 673–690.

Brown, I. V. (1961). *Pennsylvania and the rights of the Negro 1865-1887*. Retrieved from https://www.jstor.org/stable/27770005

Brown v. Board of Education, 347 U.S. 483 (1954).

Brummert, Q., Paper, J, M., Barttalotti, O., Burklander, P., Dieterlw, S., …Schneider, B. (2012). The effect of school closings of student achievement. *Journal of Public Economics, 119*, 108-124.

Bryant, M. (2002). Rural school district reorganization on the Great Plains. *Rural Educator*, *23*(3), 14–18.

Budzilek, J. A. (2008). *Perceptions of key stakeholders representing school districts included in the Standard and Poor's study entitled "cost effectiveness of consolidating Pennsylvania school districts"* (Doctoral dissertation). University of Pittsburgh, Pittsburg, PA. Retrieved from Google Scholar.

Conant, J. B. (1959). *The American high school today.* New York, NY: McGraw-Hill.

Conant, J. B. (1967). *The comprehensive high school: A second report to interested citizens*. New York, NY: McGraw-Hill.

*Cooley, D., & Floyd, K. (2013). Small rural school district consolidation in Texas: An analysis of its impact on cost and student achievement. *Administrative Issues Journal Education Practice and Research*, *3*, 45–63. Retrieved from https://doi.org/10.5929/2013.3.1.2

Core Standards. (2019). Common core state standards initiative. Retrieved from http://www.corestandards.org/

Cotton, K. (1996). School size, climate, and student performance. *School Improvement Research Series: Research You Can Use,* Close-up #20, 1-28.

*Cox, B., & Cox, B. (2010). A decade of results: A case for school district consolidation? *Education*, *131*(1), 83–91.

Cubberley, E. P. (1922). *Rural life and education: A study of the rural-school problem as a phase of the rural-life problem* (Rev. ed.). Retrieved from https://books.google.com/books?hl=en&lr=&id=AkVMAAAAIAAJ&oi=fnd&pg=PR1&dq=cubberley,+rural+life&ots=FG96A11EcZ&sig=Sp2ECyjk-V0S-4Q7H77UMt0uZng#v=onepage&q=cubberley%2C rural life&f=false

Cubberley, E. P., & Suzzallo, H. (1912). *The improvement of rural schools*. Retrieved from https://books.google.com/books?hl=en&lr=&id=y2dMAAAAIAAJ&oi=fnd&pg=PR5&dq=cubberley,+the+improvement+of+rural+schools&ots=8CHcvcBaKz&sig=6LRknYp-QTYQjO-s16oN3tN2apU#v=onepage&q=cubberley%2C the improvement of rural schools&f=false

Dalton, P., Marcenaro-Guitierrez, O., & Still, A. (2014). The efficiency index. Retrieved from https://doi.org/10.1038/103213b0

Dawson, H. A. (1948). *Your school district: The report of the national commission on school district reorganization.* Department of Rural Education, National Education Association of the United States. Retrieved from Google Scholar.

De Haan, M., Leuven, E., & Oosterbeek, H. (2016). School consolidation and student achievement. *Journal of Law, Economics, and Organization*. Retrieved from https://doi.org/10.1093/jleo/eww006

Deyoung, A. J., & Howley, C. B. (1992). The political economy of of rural school consolidation. Retrieved from Google Scholar.

Duncombe, W., & Yinger, J. (2004). *How much more does a disadvantaged student cost ?* Center for Policy Research (Policy paper 60). Retrieved from https://www.maxwell.syr.edu/uploadedFiles/cpr/publications/working_papers/wp60.pdf

*Duncombe, W. D., & Yinger, J. M. (2001). Does school consolidation cut costs? *Center*

for Policy Research, *33*, 59.

Duncombe, W. D., & Yinger, J. M. (2007). Does school district consolidation cut costs? *Education Finance and Policy*, *2*(4), 341–375.

Fanning, J. (1995). Rural school consolidation and student learning. *ERIC Digest*. Retrieved from https://files.eric.ed.gov/fulltext/ED384484.pdf

Fischel, W. A. (2010). *Neither 'creatures of the state' nor 'accidents of geography': The creation of American public school districts in the twentieth century*. *SSRN*. Retrieved from https://doi.org/10.2139/ssrn.1597401

Foght, H. W. (1910). *The American rural school*. Retrieved from https://books.google.com/books?hl=en&lr=&id=Zu4KAAAAIAAJ&oi=fnd&pg=PA1&dq=foght,+school&ots=tDg_fAM4qH&sig=dBIbZvnEsHZT6yjodHHt1Yq8voA#v=onepage&q&f=false

Forbes, R. H. (1993). North Carolina rural initiative study of secondary schools: Funding effects on depth of the curriculum. *Eric Digest*, 16. Retrieved from https://files.eric.ed.gov/fulltext/ED360133.pdf

Fox, W. F. (1981). Reviewing economies of size in education. *Journal of Educational Finance*, *6*, 273–296.

Friedkin, N. E., & Necochea, J. (1988). School system size and performance: A contingency perspective. *Educational Evaluation and Policy Analysis*, *10*, 237–249. Retrieved from https://doi.org/10.3102/01623737010003237

Gershenson, S., & Langbein, L. (2015). The effect of primary school size on academic

achievement. *Educational Evaluation and Policy Analysis*. Retrieved from https://doi.org/10.3102/0162373715576075

*Gilliland, D. (2008). *The effects of consolidation on Illinois school districts* (Doctoral dissertation). Retrieved from Google Scholar.

Glass, G. V. (2000). *Meta-analysis at 25.* Retrieved from http://www.gvglass.info/papers/meta25.html

Glass, G. V., McGaw, B., & Smith, M. L. (1981). *Meta-analysis in social research*. Retrieved from https://books.google.com/books/about/Meta_analysis_in_social_research.html?id=FQ5HA

Governor's Committee on Education. (1960). *E pluribus unum: A statistical study of the organization of Pennsylvania school districts in 1960*. Harrisburg, PA: Author.

Greenwald, R., Hedges, L., & Laine, R. (1996). The effect of school resources on student achievement. *Review of Educational Research*, *66*(3), 361–396.

Gross, B., & Hill, P. T. (2016). *The state role in k-12 education: From issuing mandates to experimentation* (Vol. 7). Retrieved from https://perma.cc/6YSN-YS5W]

Grosskopf, S., Hayes, K. J., & Taylor, L. L. (2014). Efficiency in education: Research and implications. *Applied Economic Perspectives and Policy*, *36*, 131. Retrieved from https://doi.org/http://dx.doi.org/10.4236/ojo.2014.48035

HayGroup. (2006). *Staying on track: Securing the performance of schools after merger and amalgamation*. Retrieved from www.haygroup.co.uk/education

Hershberg, J. (1995). *James B. Conant: Harvard to Hiroshima and the making of the nuclear age*. Retrieved from https://books.google.com/books?hl=en&lr=&id=fqhzrXn1RE0C&oi=fnd&pg=PA3&dq=Hershberg,+J.+(1995).+James+B.+Conant:+Harvard+to+Hiroshima+and+the+making+of+the+nuclear+age.&ots=ZlkCxnAsL5&sig=8_RnmRAzNIGgY3Za3ciZZqepJs8#v=onepage&q=Hershberg%2C%20J.%20(1995).%20James%20B.%20Conant%3A%20Harvard%20to%20Hiroshima%20and%20the%20making%20of%20the%20nuclear%20age.&f=false

Hoots v. Commonwealth of Pennsylvania 359 F. Supp. 807 (W.D. Pa. 1973).

Howley, C., Johnson, J., & Petrie, J. (2011). *Consolidation of schools and school districts: What the research says and what it means*. Retrieved from http://nepc.colorado.edu/publication/consolidation-schools-districts

Huang, G., & Howley, C. (1993). Mitigating disadvantage: Effects of small-scale schooling on student achievement in Alaska. *Journal of Research in Rural Education*, *9*(3), 137–149. Retrieved from http://php.scripts.psu.edu/dept/jrre/articles/v9,n3,p137-149,Huang.pdf

Hyland, M. (2013). Too many school districts? Retrieved https://fox43.com/2013/05/07/too-many-school-districts/

Imerman, M., & Otto, D. (2003). *A preliminary investigation of school district expenditures with respect to school district size in Iowa.* Retrieved from www.econ.iastate.edu/research%0A/webpapers/paper-10183.pdf

Johnson, J. (2006). More doesn't mean better: Larger high schools and more courses do

not boost student achievement in Iowa high schools. *Rural School and Community Trust*, (March). Retrieved from Google Scholar.

Joint State Government Commission General Assemply of the Commonwealth of Pennsylvania. (2017). *School districts in Pennsylvania: ways to work together, 2015 House Resolution 910 Staff Study*. Retrieved from http://jsg.legis.state.pa.us

Kotok, S., Reed, K., Kucsera, J., & Orfield, G. (2015). Is opportunity knocking or slipping away?: Racial diversity and segregation in Pennsylvania. Retrieved from https://www.civilrightsproject.ucla.edu/research/k-12-education/integration-and-diversity/is-opportunity-knocking-or-slipping-away-racial-diversity-and-segregation-in-pennsylvania

Kuchinke, P. K. (2010). *Restoring prosperity: Transforming Ohio's communities for the next economy.* Retrieved from https://www.brookings.edu/research/restoring-prosperity-transforming-ohios-communities-for-the-next-economy/

Kuziemko, I. (2006). Using shocks to school enrollment to estimate the effect of school size on student achievement. *Economics of Education Review*. Retrieved from https://doi.org/10.1016/j.econedurev.2004.10.003

Lawrence, B., Bingler, S., Diamond, J. D., Hill, B., Hoffman, J. L., Howley, C., … Washor, E. (2002). Dollars and sense: The cost effectiveness of small schools. Retrieved from http://www.ruraledu.org/docs/dollar.htm

Leckrone, J. W. (2015). *The politics of educational change : What can we learn from the school consolidation acts of 1961 and 1963* ? Center on Regional Politics, Temple

University, Philadelphia, PA.

Lee, V. E., Ready, D. D., & Welner, K. G. (2004). Educational equity and school structure: School size, school overcrowding, and alternative organizational structures. Retrieved from https://doi.org/10.1109/VLHCC.2015.7357242

Lee, V. E., & Smith, J. B. (1997). High school size: Which works best and for whom? *Educational Evaluation and Policy Analysis*, *19*(3), 205–227.

Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage.

Liu, C., Zhang, L., Luo, R., Rozelle, S., & Loyalka, P. (2010). The effect of primary school mergers on academic performance of students in rural China. *International Journal of Educational Development*. Retrieved from https://doi.org/10.1016/j.ijedudev.2010.05.003

Mahon, E. (2019). Why are there so many superintendents in Pennsylvania? Here are four reasons. Retieved https://papost.org/2019/02/13/why-are-there-so-many-superintendents-in-pennsylvania-here-are-four-reasons/

Marchbank, S. A. (2015). *Mixed methods case study of consolidation effects on a rural Maryland school.* (Doctoral dissertation) . Retrieved from https://search.proquest.com/docview/1705805552?accountid=10673%0Ahttp://openurl.ac.uk/redirect/athens:edu/?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:dissertation&genre=dissertations+%26+theses&sid=ProQ:Education+Database&atitle=&title=Mixed+met

McCray, V. (2014, June 22). Bettsville schools to merge with old rival. *Toledo Blade*. Retrieved from https://www.toledoblade.com/Education/2014/06/22/Bettsville-schools-to-merge-with-old-rival.html

McGuffey, C. W., & Brown, C. L. (1978). The relationship of school size and rate of school plant utilization to cost variations of maintenance and operation. *American Educational Research Journal*, *15*(3), 373–378.

McNeil, G. R. (1980). Community initiative in the desegregation of District of Columbia schools, 1947-1954: A brief historical overview of consolidated parent group, inc. Activities from Bishop to Bolling. *Howard LJ, 23*, 25. https://heinonline.org/HOL/LandingPage?handle=hein.journals/howlj23&div=13&id=&page=

McNutt, J. (2017). Why not consider countywide school districts for state? Retrieved https://observer-reporter.com/opinion/editorials/why-not-consider-countywide-school-districts-for-state/article_cd1b35f4-d478-5d04-a377-cb830e5d4aad.html

Michaud, A. (2001, October). Future in the balance. *Pittsburgh Journal*, 86–90.

Miller, J. W., Ellsworth, R., & Howell, J. (1986). Public elementary schools which deviate from the traditional SES-achievement relationship. *Educational Research Quarterly, 10*(3), 31-
50.

*Mills, J. N., McGee, J. B., Foundation, J. A., & Greene, J. P. (2013). An analysis of the effect of consolidation on student achievement: Evidence from Arkansas (EDRE Working Paper No. 2013-02). Retrieved from Google Scholar.

National Center For Education Statistics. (2012). Digest of education statistics 2012. *U.S. Department of Education*, *114*, 1–836. Retrieved from https://doi.org/10.5860/CHOICE.51-5366

New York State Association of School Business Officials. (2014). *Why do school district mergers fail? A policy brief with recommendations*. Retrieved from http://www.castalloandsilky.com/sitebuildercontent/sitebuilderfiles/nysasboreport.pdf

New York State Education Department. (2004). *Overview of district performance in English language arts, mathematics, and science, and analysis of student subgroup performance for South Manor Union Free School District*. Albany, NY: The University of the State of New York.

New York State Education Department. (2019). Retrieved from http://www.nysed.gov/

New York State University. (1958). *Master plan for school district reorganization in New York state*. Advisory Committee on the Master Plan for School District Reorganization, University of the State of New York, & New York (State). Legislature. Joint Committee on the State Education System.

Nikolas, D. H., & Hohenadel, J. P. (2017). § 2-224 of the Pennsylvania School Code. Pennsylvania school district merger : A procedural overview. Retrieved from https://cpb-us-w2.wpmucdn.com/www.columbiabsd.org/dist/c/1/files/2017/09/CBSD-Merger-White-Paper-2017-2018-1j2g9pi.pdf

Ohio Department of Education. (2019). Retrieved from https://education.ohio.gov/

Orr, D. W. (1992). *Ecological literacy: Education and the transition to a postmodern world*. Retrieved from https://books.google.com/books?hl=en&lr=&id=aiRBTwqDvZ0C&oi=fnd&pg=PR9&dq=Orr,+D.+(1992).+Ecological+literacy:+Education+and+the+transition+to+a+post-modern+world.&ots=-gY2tYp_rc&sig=o4QU54wVwpSAkPYgfS_EfNkgk7I#v=onepage&q=Orr%2C D

Patterson, J. A., Koenigs, A., Mohn, G., & Rasmussen, C. (2006). Working against ourselves: Decision-making in a small rural school district. *Journal of Educational Administration*, *44*(2), 142–158.

Pennsylvania Department of Education. (2019). Retrieved from https://www.education.pa.gov/Pages/default.aspx

Pennsylvania Economy League, C. P. D. (2010). Munipal merger/consolidation and sharing of services. Retrieved from http://teampa.com/wp-content/uploads/2010/07/Final-Report-TeamPA-Merger-Consoldation.pdf

Pennsylvania School Boards Association. (2009). Merger / consolidation of school districts : merger / consolidation of school districts : Does it save money and improve student achievement ? Retrieved from http://mrea-mt.org/wp-content/uploads/2016/04/PA-psba-merger-consolidation.pdf

Pigozzi, M. J. (2006). *What is the 'quality of education'?* Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000147093.page=34

Ralph, J. H., & Rubinson, R. (1980). Immigration and the expansion of schooling in the United States, 1890-1970. *American Sociological Review*, 943-954. Retrieved from https://www.jstor.org/stable/2094911?seq=1#page_scan_tab_contents

Ramirez, A. (1992). Size, cost, and quality of schools and school districts: A question of context. *Eric database*, 1–23. Retrieved from Google Scholar.

Rooney, K., & Augenblick, J. (2009). *An exploration of district consolidation*. Retrieved from Google Scholar.

Schafft, K., & Jackson, A. (2010). *Rural education for the twenty-first century*. Retrieved from https://books.google.com/books?hl=en&lr=&id=pBWIujMGUf4C&oi=fnd&pg=PP2&dq=Schafft+%26+Jackson,+2010&ots=3U2AA3Rbf8&sig=1TfzrJO6Q3YUBiQC5ZG93YZw5Yo#v=onepage&q=Schafft %26 Jackson%2C 2010&f=false

Schmidt, L. (2011). *Consolidation called into question.* (Doctoral dissertation). Kent State University, Kent, OH.

Self, T. L. (2001). Evaluation of a single school district consolidation in Ohio. *American Secondary Education*, *30*(1).

Self, T. L. (2002, October). *A post-consolidation evaluation: The effects eight years later.* Paper presented at the annual meeting of the mid-western, Chicago, Il.

Shreve, R. (1989). History of Ohio's county boards of education. *Ohio State Department of Education*, (June). Retrieved from https://files.eric.ed.gov/fulltext/ED349632.p

Slate, J. R., & Jones, C. H. (2005). Effects of school size: A review of the literature with

recommendations. *Essays in Education, 13*(1), 1-24.

Snyder, T. D. E. (1993). 120 years of American education: A statistical portrait. *Center for Education Statistics*, 115. Retrieved from https://doi.org/10.1124/jpet.105.093856

Spring, J. (2011). *The politics of American education.* New York, NY: Routledge.

Stevenson, K. R. (2006). School size and its relationship to student outcomes and school climate: A review and analysis of eight South Carolina state-wide studies. National Clearinghouse for Educational Facilities. Retrieved from http://www.ncef.org/pubs/size_outcomes.pdf

Strang, D. (1987). The administrative transformation of American education : School district consolidation. *Administrative Science Quarterly, 32*(3), 352-366.

Streifel, J. S., Holman, D., & Foldesy, G. (1992). An overview of the research on school district consolidation. *Journal of Rural and Small Schools (USA)*, *5*(3), 34–39.

Suiter/Swantz Intellectual Property. (2016). *The evolution of the school bus.* Retrieved from https://www.suiter.com/the-evolution-of-the-school-bus/

Tennison, D. (2014). *An investigation into factors contributing to effective board behaviors within consolidated rural districts.* (Doctoral dissertation). University of Oklahoma, Norman, OK. Retrieved from https://shareok.org/bitstream/handle/11244/10431/AN%20INVESTIGATION%20INTO%20FACTORS%20CONTRIBUTING%20TO%20EFFECTIVE%20BOARD%20BEHAVIORS%20WITHIN%20CONSOLIDATED%20RURAL%20DISTRIC

TS.pdf?sequence=1&isAllowed=y

U.S. Department of Education. (2019). Every student succeeds act (2014). Retrieved from https://www.ed.gov/essa?src=policy

U.S. Department of the Interior. (n.d.). *Principles and procedures in the organization of satisfactory local school units*. Washington, DC: Author.

Vorthmann, C.D. (2011). The relationship between school size and student achievement in Misssouri. Retreived from http://www.bakeru.edu/images/pdf/SOE/EdD_Theses/Vorthmann_Corey.pdf?

APPENDIX A

YOUNGSTOWN STATE UNIVERSITY

One University Plaza, Youngstown, Ohio 44555
Office of Research
330.941.2377

March 19, 2019

Dr. Karen Larwin, Principal Investigator
Mr. Jason Hall, Co-investigator
Department of Counseling, School Psychology and Educational Leadrship
UNIVERSITY

RE: HSRC PROTOCOL NUMBER: 163-2019
TITLE: A Meta-Analysis to Determine the Effect of School District Consolidation on Student Performance on State Assessments

Dear Dr. Larwin and Mr. Hall:

The Institutional Review Board has reviewed the abovementioned protocol and determined that it meets the criteria of DHHS 45 CFR 46.104(b)(2) and therefore it is exempt from full committee review.

Any changes in your research activity should be promptly reported to the Institutional Review Board and may not be initiated without IRB approval except where necessary to eliminate hazard to human subjects. Any unanticipated problems involving risks to subjects should also be promptly reported to the IRB.

The IRB would like to extend its best wishes to you in the conduct of this study.

Sincerely,

Dr. Greg Dillon
Interim Associate Vice President for Research
Authorized Institutional Official

GD:cc

c: Dr. Jake Protivnak, Chair
Department of Counseling, School Psychology and Educational Leadership